Tour cSeries 1109G/C™
User Manual

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Important Safety Information

Warning

There are no user serviceable parts inside.
Refer all servicing to qualified service personnel.

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

To reduce the risk of fire or electric shock, do not expose the unit to moisture or water. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Caution

Read all the instructions before connecting or operating the component. Keep this manual so you can refer to these safety instructions.

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Clean the enclosure only with a dry cloth or a vacuum cleaner. The detector may be placed in a protective bag to avoid contamination during use.

Clean the DR plate with a damp cloth. Use only water or isopropanol.

You must allow 10 cm or 4 inches of unobstructed clearance around the unit. Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation slots. If the component is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.

Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat. Keep the component away from flammable materials.

The unit must be connected to a power supply only of the type and voltage specified on the side panel of the unit. The system should be positioned so the power inlet is accessible during use.

Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable in any way. Do not attempt to defeat grounding and/or polarization provisions. Do not use extension cords.

Important Safety Information

Caution *(continued)*

Do not route the power cord where it will be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where it exits the back of the unit.

All IO ports on the laptop are not intended to be connected to any other equipment when equipment is being used in the patient environment. When treating a patient, the operator shall not touch any part of the laptop and the patient at the same time.

The cords used with this system pose a trip hazard and must be routed to minimize the chance of contact with the patient or operator.

The power cord should be unplugged from the wall outlet if the unit is to be left unused for a long period of time. Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- *The power supply cord or plug has been damaged.*
- *Objects have fallen or liquid has been spilled into the unit.*
- *The unit has been exposed to rain.*
- *The unit shows signs of improper operation*
- *The unit has been dropped or damaged in any way*

Place the unit on a fixed, level surface strong enough to support its weight. Do not place it on a moveable cart that could tip over.

Avoid pinching fingers in the case when closing.

Do not place weight on the detector, use a protective tunnel for heavy items like a hoof.

System will become unresponsive when exposed to Electrostatic Discharge (ESD) or Electrical Fast Transient (EFT) conditions. This is the normal response to these environmental conditions. Please restart the system to return to normal operation.

Specifications

Power Requirements

100 - 240 Volts ~, 50/60 Hz, 5 Amps
Type B applied part, Class 1 electrical equipment

Operating Environment

5 - 35°C, 30 - 50% RH (non-condensing)

Storage / Transportation

-30 to 60°C, 10 - 60% RH (non-condensing) 700 – 1060 hPa

Dimensions (W x H x D)

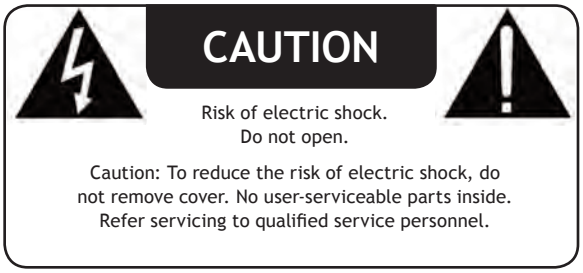
14” w x 15” h x .9” d, 35.6 cm w x 38.1 cm h x 2.3 cm d

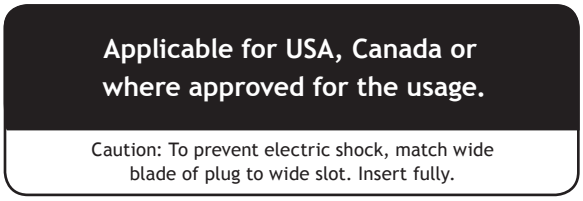
Weight (net)

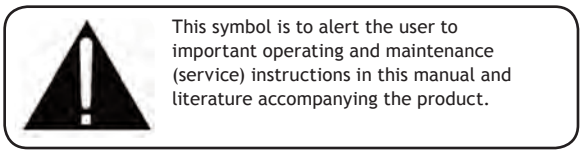
47 lbs, 21.32 kg

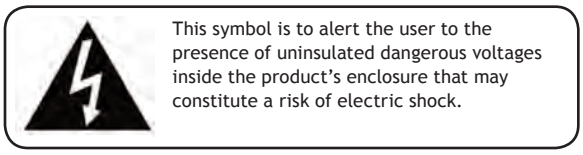
Disposal

The customer is responsible for the disposal of the medical device. Disposal activities must follow the regulations (especially controlled industrial waste) of the country where the device is used.


CAUTION
Risk of electric shock.
Do not open.
Caution: To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.


Applicable for USA, Canada or where approved for the usage.
Caution: To prevent electric shock, match wide blade of plug to wide slot. Insert fully.


This symbol is to alert the user to important operating and maintenance (service) instructions in this manual and literature accompanying the product.


This symbol is to alert the user to the presence of uninsulated dangerous voltages inside the product’s enclosure that may constitute a risk of electric shock.

Tour1109™ System Setup

The Tour1109™ works seamlessly with the X-ray generator to provide the best image quality in a small, lightweight, self-contained system. The Tour1109™ portable Acquisition Stations are intended to be used by Veterinarians for intermittent mobile diagnostic applications. They will connect the Acquisition laptop in the case to a Varian Amorphous Silicon Digital X-Ray Detector (2520E+).

Tour1109™ System Setup *(continued)*

The system comes with several components that integrate the X-ray machine, plate, and the computer. If you need to order replacement parts, please refer to the part numbers in parenthesis.

Transit Case for Tour 1109 (70-324):
Carries and protects the computer, plate, and plate cable.

Replacement Retractable Handle for Tour 1109 Case (30-438)

Replacement Wheels for Tour 1109 (30-439):
Wheel kit allows for easy transport in airports and on smooth surfaces.

CXDI-60G Digital Radiography Detector (94-110)

CXDI-60C Digital Radiography Detector (94-126):

Captures digital radiographs.

Handswitch (90-412):

Syncs the generator's prep and expose cycle with the computer.

Tour1109™ System Setup *(continued)*

Ethernet Cable (90-403):
Connects the computer to the network to allow for easy image transfers from the Tour1109™ to the Storage Station.

21 ft Plate Cable for Canon 60G/C Sensor Panel (14-153):
Provides power to the plate and syncs the plate and Tour1109™ Transit System.

Sync Kit (Box and cables) for Mark® Systems with MinXray 8015 or Poskom (14-158):
Provides synchronization between the computer and a Minxray 8015 or Poskom Generator. Configuration with other generators also available.

Single Connection Sync Cable (25') for Mark® systems with MinXray TR90 and HF8015+dlp (14-802):
Provides synchronization between the the computer and a Minxray TR90 or HF8015+dlp Generator.

Power Cable (10-171):
Connects the Tour1109™ to any standard U.S. 110W power outlet (Nema 5-15).

Tour1109™ System Setup *(continued)*

Opening the Tour1109™ Case

1. Press in on the metal pin on each latch to open the Tour1109™ Case. With the pin pressed, lift the latch to unlock the case.

Tour1109™ System Setup *(continued)*

Connecting the Power and Sync Cables

1. Remove the Plate.
2. Remove the Plate Cable.

3. Place the plate in the Plate Park on the side of the case.

***Plate Cable* 14-153**

Tour1109™ System Setup

Connecting the Power and Sync Cables *(continued)*

4. Twist the knob counter clockwise on the Connector Panel door to reveal the connection ports.

***Power Cable* 10-171**

***Generator Sync Cable* 14-802**

***Plate Cable* 14-153**

Tour1109™ System Setup

Connecting the Power and Sync Cables *(continued)*

5. Connect the Plate Cable by aligning the notches and screwing on the connector.

***Plate Cable* 14-153**

6. Connect the long plate cable to the pigtail cable that is attached to the panel.

Tour1109™ System Setup *(continued)*

Connecting the Generator

The power sync cable should be stored in the generator box.

1. Plug the Single Connection Sync Cable (14-802) directly from the Acquisition into the MinXray TR90 or 8015+

Or
Plug the Sync Cable (14-801) from the Acquisition into the black X-Ray Interface sync box (14-810).

Detail of Sync Cable from the Acquisition into the black X-Ray Interface sync box

Connect the generator to the black X-Ray Interface sync box

Tour1109™ System Setup

Connecting the Generator *(continued)*

2. Plug the Hand Switch into the correct Handswitch port on the Black X-Ray Interface sync box (14-810).

3. Plug the Sync Cable into the case by lining up the red dot on the connector from the cable to the connector on the receptacle.

Tour1109™ System Setup *(continued)*

Powering Up the Tour1109™ System

1. Plug the female end of the power cable into the power cable slot on the Tour1109™ box. Plug the other end into a grounded power outlet (see page ii Power Requirements).

Power Cable 10-171

2. With the cables connected, turn on the Tour1109™ by pressing the white ON switch to “I” (O = off, I = on) located in the upper left corner. The battery light on the laptop will light up, showing power to the unit.

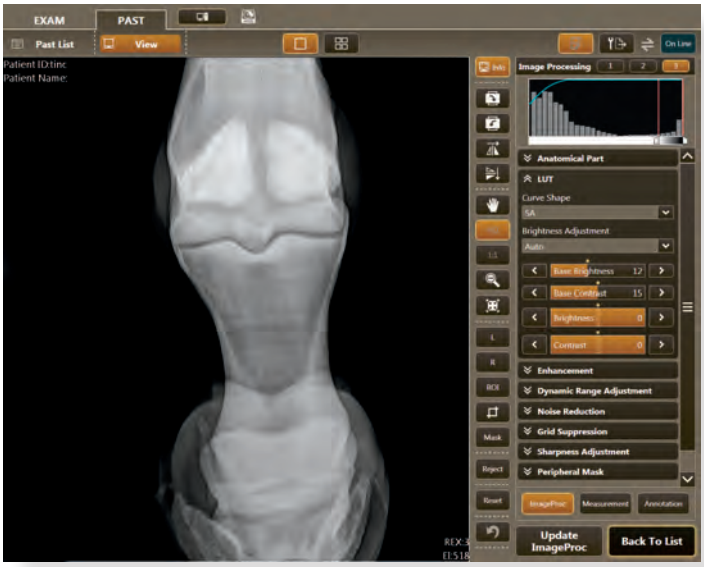
Tour1109™ System Setup

Powering Up the Tour1109™ System *(continued)*

3. Open the computer by sliding the gray clip on the front edge to the right and lifting the lid.

4. Turn on the laptop by pressing the Power button ⏻ on the keyboard.

Tour1109™ CXDI Control Software NE



To the Customers

Thank you for purchasing the Canon CXDI Control Software NE (hereinafter called this product).
Operating instructions are divided into two volumes: the Operation Manual and the Setup Guide.
Before using this product, be sure to read these manuals thoroughly in order to utilize this product more effectively.

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5. Roentgenography, image processing, image reading, and image data storage must be performed in accordance with the laws of the country or region in which the product is being used.
   The user is responsible for maintaining the privacy of image data.
6. Information in this manual may change without prior notice.
7. Screen images in this manual may differ from those displayed on your image capture computer due to customization, updates and improvements in the software.
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Third Party Software

Third-party software will be installed on the image-capture computer when the control software is being installed by the service engineer. For details on the third-party software and its license agreements, consult your service engineer.

Safety Summary

Before using this product, read this safety summary thoroughly. This information will prevent the users and persons involved from sustaining physical harm and/or property damage.
Read the separate Setup Guide and the Digital Radiography CXDI series User's Manual as well.

Safety Notices

The following safety notices are used to emphasize certain safety instructions. This manual uses the caution symbol along with a caution message.

⚠ **CAUTION**	**This notice is used to identify conditions under which improper use of the product may cause minor personal injury.**
CAUTION	**This notice is used to identify conditions under which improper use of the product may cause property damage.**

Safety Precautions

Follow these safeguards and properly use the application software to prevent injury and damage to any equipment/data.

While preparing for examinations

⚠ CAUTION

- **Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**
- **Be sure to use the [Emergency] button only for an emergency examination. If not heeded, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

While shutting down

CAUTION

Do not turn the image-capture computer off before it automatically shuts down. Doing so may result in damage to the hardware and/or destruction of data.

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1 Getting Started

1.1 Introduction

1.2 Notations

1.3 Workflow diagram for a general radiographic examination

1.4 Part names of screens (Quick reference)

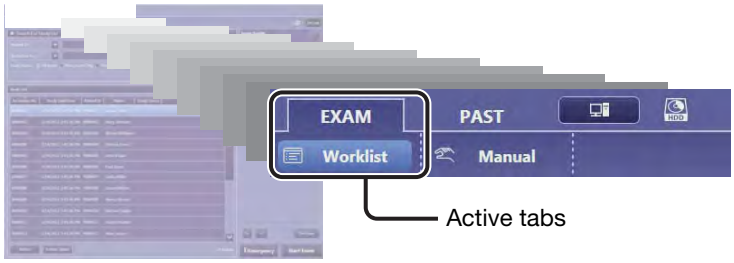
1.1 Introduction

The CXDI Control Software NE (hereinafter referred to as the “Software”) is designed to provide a steady and efficient workflow in the field of digital radiography when linked to an RIS/HIS network. Up to four CXDI detectors including wireless detectors can be connected simultaneously to the Software. Images captured using the CXDI detector are automatically processed by the Software to achieve diagnostic image quality. Furthermore, the Software offers advanced processing features with intuitive operability.

1.2 Notations

1.2.1 Screen names

In this manual, screens are identified by the titles of active tabs.
For example, “[EXAM > Worklist] screen” indicates that the [EXAM] and [Worklist] tabs are selected in sequence.



1.2.2 Buttons

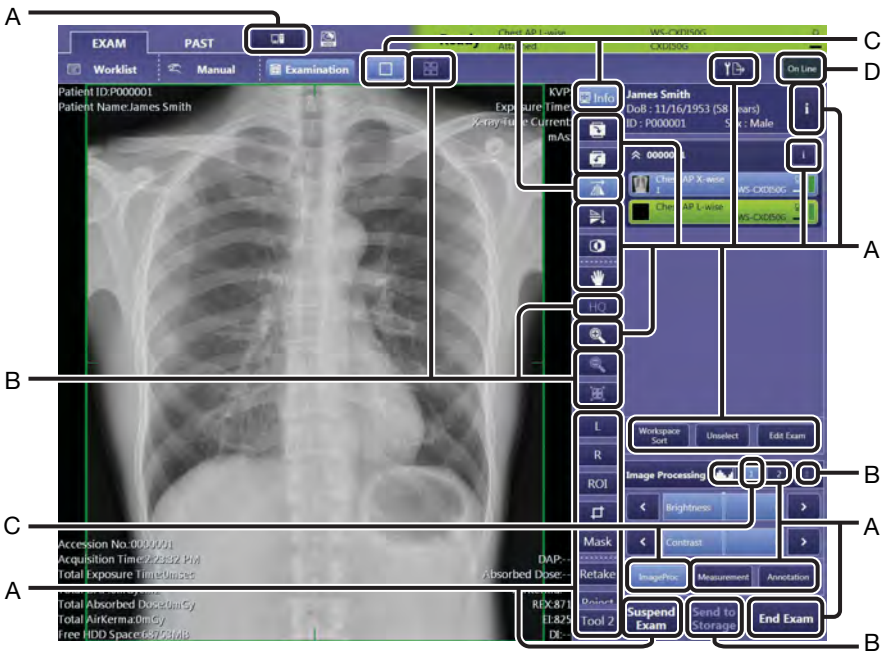
In this manual, the key top labels of buttons on the Software screen are written in square brackets, such as [OK] and [Cancel], or the icon is shown.

Button appearance on the Software screen

Enabled buttons: Appear with a navy-blue background. (A)
Enabled buttons (prompted): Appear with a navy-blue background surrounded by a blinking line.
Disabled buttons: Appear with a grayed-out key-top label. (B)
Selected buttons: Appear highlighted in pale-blue surrounded by a white line. (C)
Toggle buttons: Key-top label and color alternately change (e.g., On Line / Off Line) with each click. (D)

NOTE: Six types of screen background color are prepared for the Software: Warm Dark, Cool Dark, Monochrome Dark, Warm Light, Cool Light, and Monochrome Light. Refer to 2.3.1 in the Setup Guide for details on setting the screen background color.
In this manual, the Cool Light screen, that is the default setting, is used for explanation.

Example



1.2.3 Mouse wheel operations

The mouse pointer may change to while pointing on a list table, at a numeric entry field, or on a control slider. In such cases, rotating the mouse wheel scrolls through the list, enters values, or moves the slider. For a control slider, dragging the slider is an alternative operation.

1.2.4 Touch-screen display operations

This manual assumes that users are using a mouse and keyboard. However, touch-screen displays are also available. Unless otherwise stated, the operating procedures using a touch-screen display is the same as those using a mouse and keyboard. When using a touch-screen display, “Click [OK]” is equivalent to “Touch [OK].”

1.2.5 References

References to this manual:

Associated information in this manual is indicated by the section number or by the section number followed by the title, as seen below:

(See 3.1.5)
See step 2 in 3.1.5 for details on operation.
Proceed to “3.1.5 Configuring protocols.”

References to other documents:

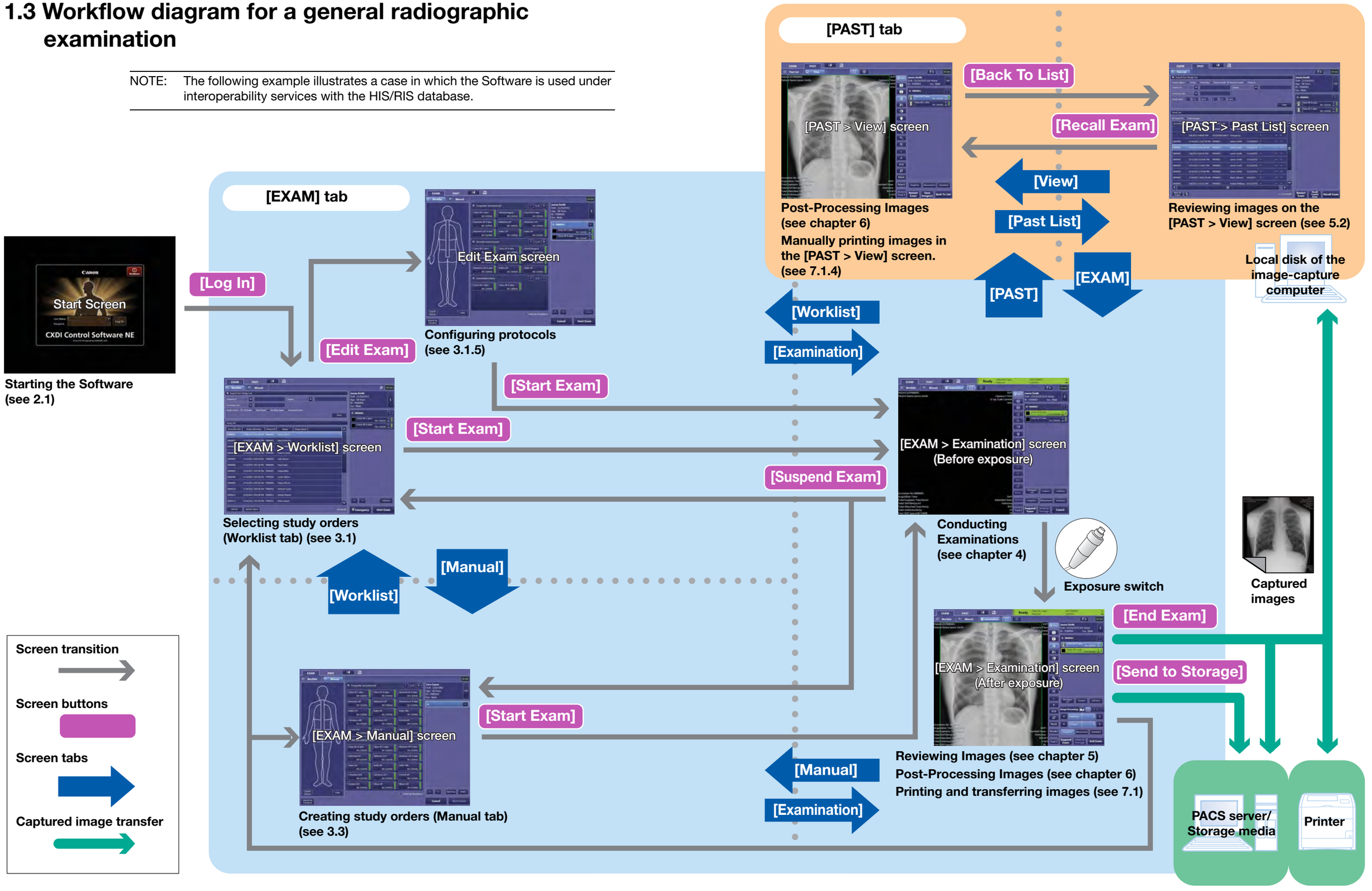
Associated information in other manuals is indicated by the manual title or the section number followed by the manual title, as seen below:

Refer to the Operation Guide supplied with the power box.
For details, refer to the Setup Guide*.
(refer to 2.4.1 in the Setup Guide* for details on setting essential information items)

* “Setup Guide” refers to the CXDI Control Software NE Setup Guide.

1.3 Workflow diagram for a general radiographic examination

NOTE: The following example illustrates a case in which the Software is used under interoperability services with the HIS/RIS database.



1.4 Part names of screens (Quick reference)

NOTE: Screen details may differ depending on the settings of the Software.

1.4.1 [EXAM > Worklist] screen

A: HDD free space icon (→3.1.1, page 43)

B: System setup button (→2.1.1 in the Setup Guide)

C: Search For Study List pane (→3.1.1, page 42)

D: Study List (→3.1.1, page 42)

E: Data transfer indicator (→4.1, page 70)

F: [On Line]/[Off Line] selector/indicator (→2.3, page 36)

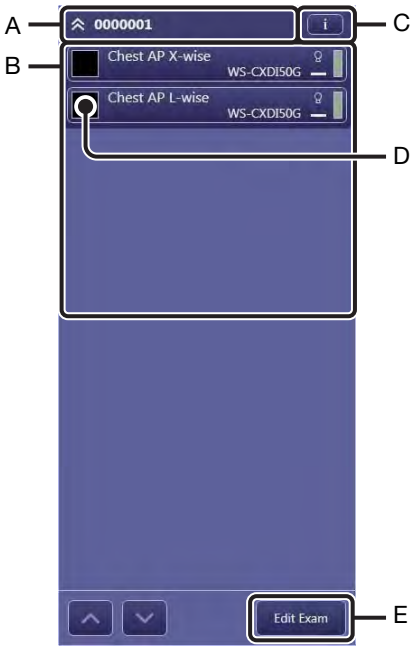
G: Patient information pane (→3.1.2, page 46)

H: Study information pane (→1.4.2, page 15) (→3.1.2, page 46)

I: [Start Exam] (→4.1, page 70)

J: [Emergency] (→3.4, page 64)

1.4.2 Study information pane and protocols



A: Study title (Accession number) (→3.1.2, page 46) (→“Study Information Display” in 2.4.1 in the Setup Guide)

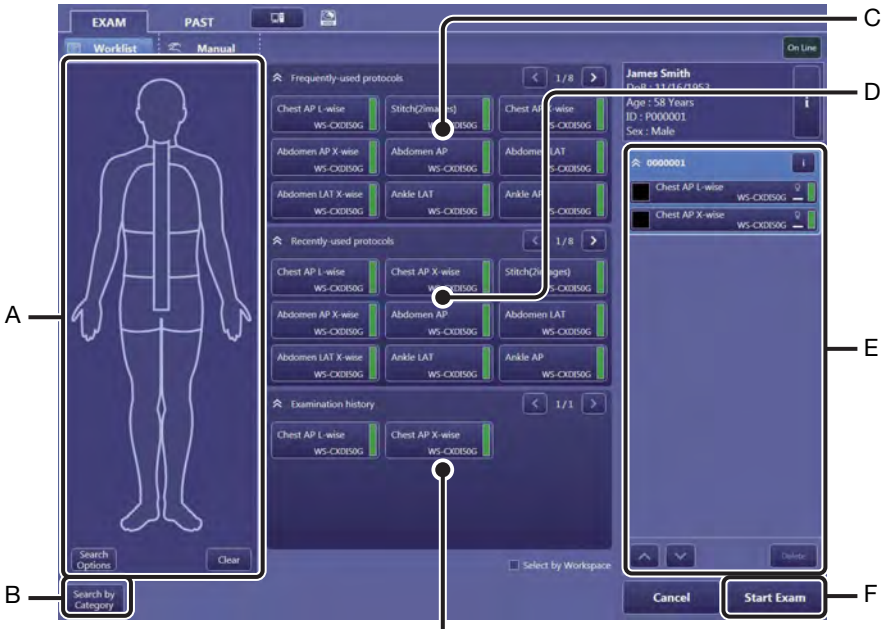
B: Protocol list (→Chapter 4, page 67)

C: Information button (→3.1.2, page 46) (→3.1.3, page 47)

D: Thumbnail

E: [Edit Exam] (→3.1.5, page 51)

1.4.3 Edit Exam screen



Body part search mode

A: Body part selector (→3.2.1, page 53)

B: [Search by Category] (→3.2.2, page 56)

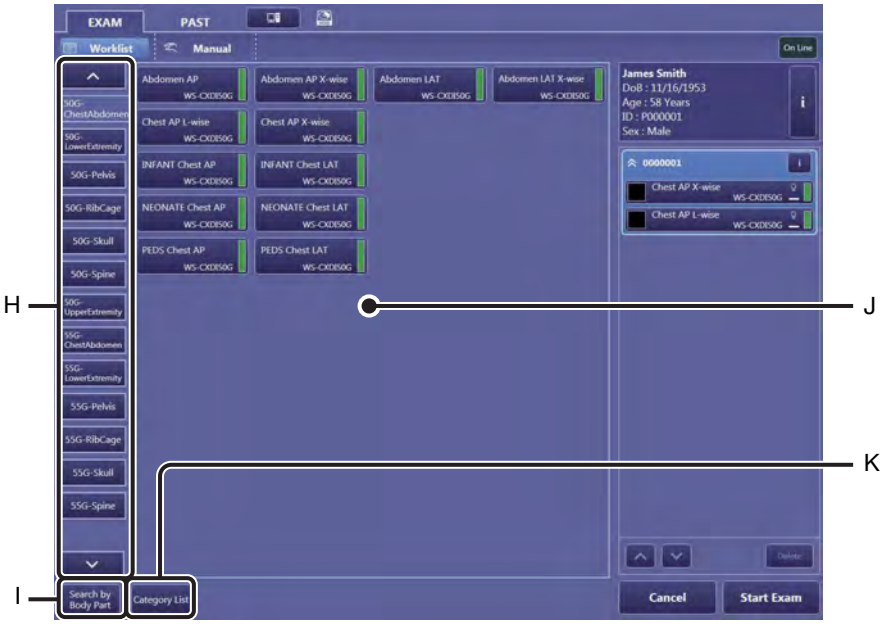
C: Frequently-used protocols list (→3.2.1, page 53)

D: Recently-used protocols list (→3.2.1, page 53)

E: Study information pane (→1.4.2, page 15) (→3.1.2, page 46)

F: [Start Exam] (→4.1, page 70)

G: Examination history list (→3.1.5, page 51)



Category search mode

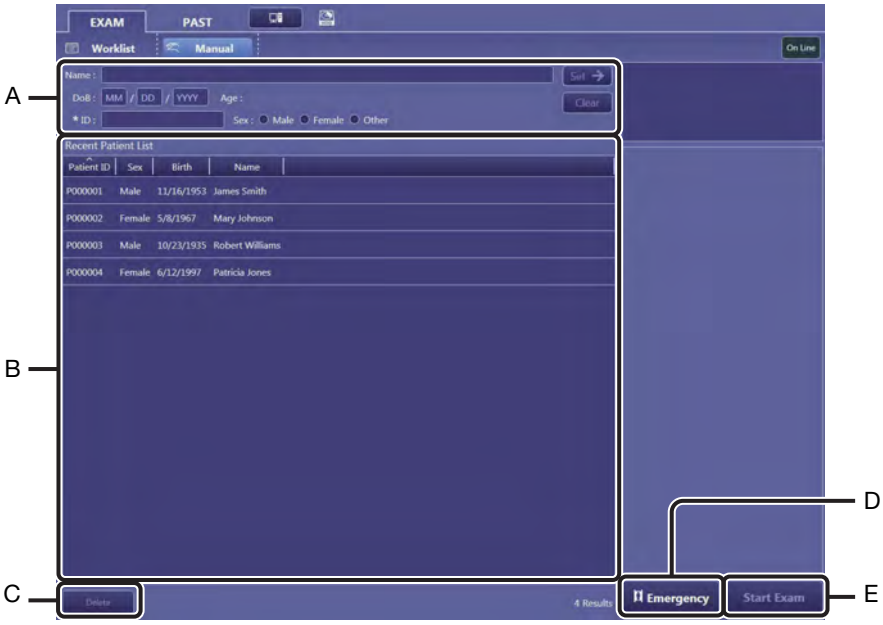
H: Category tabs (→3.2.2, page 56)

I: [Search by Body Part] (→3.2.2, page 56)

J: Protocol list (→3.2.2, page 56)

K: [Category List] (→3.2.2, page 56)

1.4.4 [EXAM > Manual] screen



A: Patient information entry (→3.3.1, page 58)

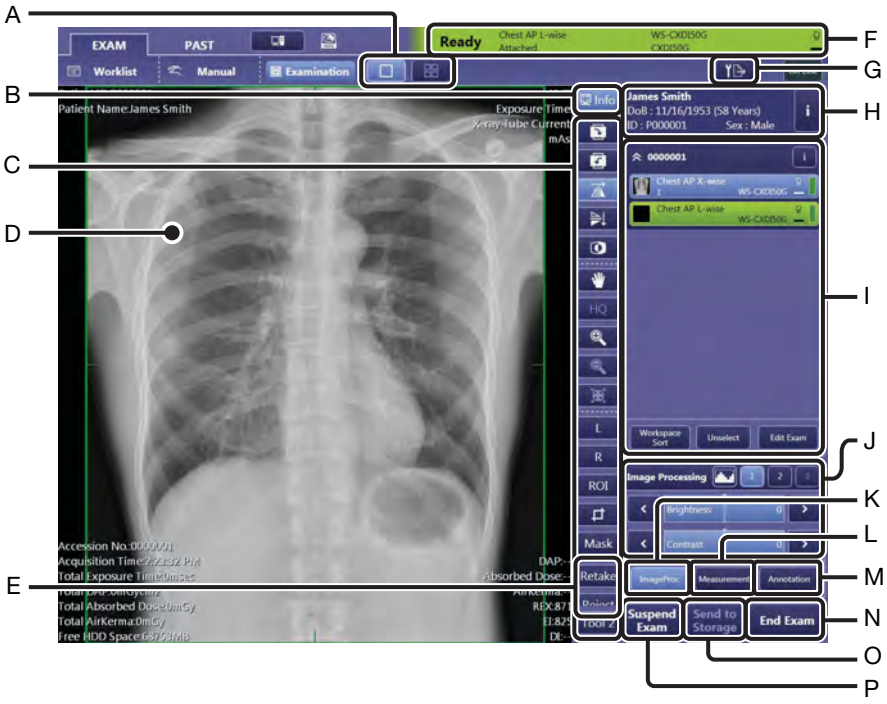
B: Recent Patient List (→3.3.1, page 58)

C: [Delete] (→3.3.1, page 58)

D: [Emergency] (→3.4, page 64)

E: [Start Exam] (→4.1, page 70)

1.4.5 [EXAM > Examination] screen



A: View mode buttons (→5.1, page 96)

B: [Info] (→5.1, page 96)

C: Toolbar (→1.4.8, page 22) (→6.1, page 112)

D: Image view pane (→4.1, page 70)

E: [Retake] (→4.4, page 83),
[Reject] (→4.5, page 84)

F: System status bar (→4.1, page 70)

G: Output setting button (→7.1, page 142)

H: Patient information pane (→3.1.2, page 46)

I: Study information pane (→1.4.2, page 15) (→4.1, page 70)

J: Image Processing panel (→1.4.9, page 23) (→6.2, page 126)

K: [ImageProc] (→6.2, page 126) (→7.2, page 154)

L: [Measurement] (→1.4.10, page 24) (→6.3, page 129)

M: [Annotation] (→1.4.11, page 24) (→6.4, page 136)

N: [End Exam] (→4.1, page 70)

O: [Send to Storage] (→4.1, page 70)

P: [Suspend Exam] (→4.6, page 85)

1.4.6 [PAST > Past List] screen

A: HDD free space icon (→3.1.1, page 43)

B: Search For Study List pane (→3.1.1, page 42)

C: Study List (→5.2, page 98)

D: Patient information pane (→3.3.2, page 62)

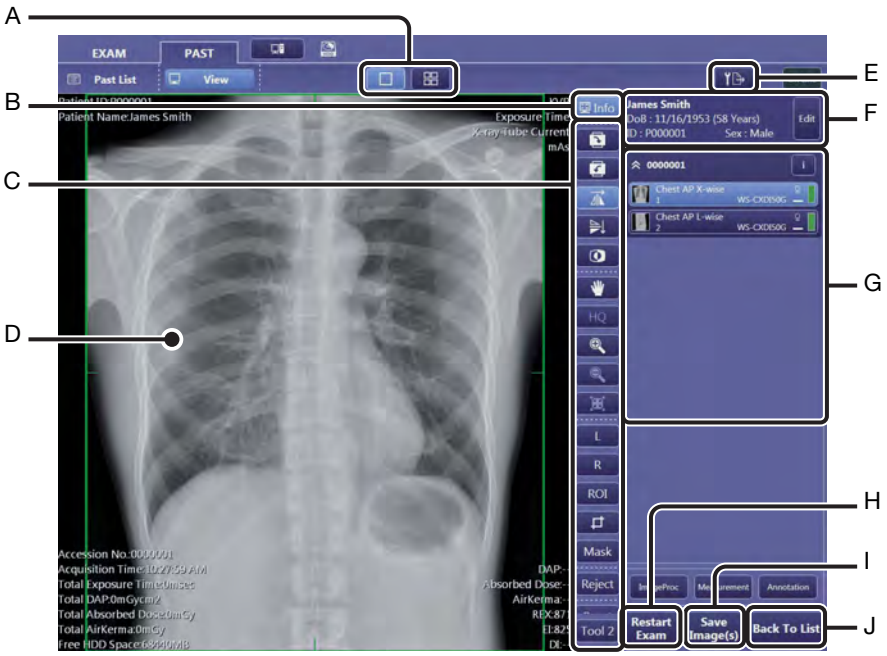
E: Study information pane (→1.4.2, page 15) (→5.2, page 98)

F: [Restart Exam] (→5.2.2, page 101)

G: [Recall Copied Exam] (→5.2.3, page 102)

H: [Recall Exam] (→5.2.1, page 100)

1.4.7 [PAST > View] screen



A: View mode buttons (→5.1, page 96)

B: [Info] (→5.1, page 96)

C: Toolbar (→1.4.8, page 22) (→6.1, page 112)

D: Image view pane (→5.2, page 98)

E: Output setting button (→7.1, page 142)

F: Patient information pane (→3.3.2, page 62)

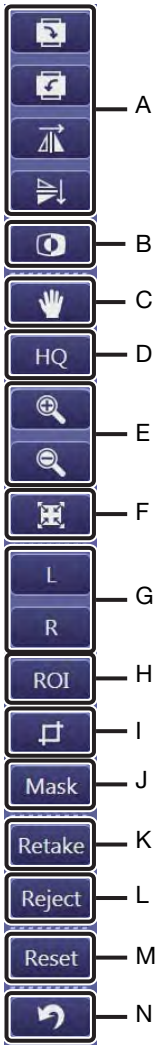
G: Study information pane (→1.4.2, page 15) (→5.2, page 98)

H: [Restart Exam] (→5.2.2, page 101)

I: [Save Image(s)] (→5.2.1, page 100)

J: [Back To List] (→5.2.1, page 100)

1.4.8 Toolbar



A: Rotation/Flip buttons (→6.1.1, page 114)

B: Negative/positive button (→6.1.2, page 114)

C: Panning button (→6.1.3, page 115)

D: [HQ] (→6.1.4, page 116)

E: Zoom in/out buttons (→6.1.4, page 116)

F: Fit button (→6.1.4, page 116)

G: [L]/[R] (→6.1.5, page 117)

H: [ROI] (→6.1.6, page 118)

I: Crop button (→6.1.7, page 120)

J: [Mask] (→6.1.8, page 123)

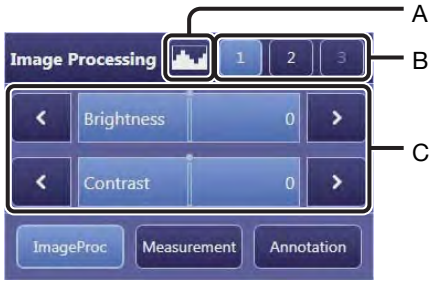
K: [Retake] (→4.4, page 83)

L: [Reject] (→4.5, page 84)

M: [Reset] (→6.1, page 112)

N: Undo button (→6.1, page 112)

1.4.9 Image Processing panels



Basic image processing (Level 1)

A: Show/hide selector for histogram and LUT curve (→6.2.1, page 126)

B: Access level selector/indicator (→6.2, page 126) (→7.2, page 154)

C: Brightness and Contrast controls (→6.2.2, page 128)

Advanced image processing (Level 2/3)

D: Anatomical Part control (→7.2.2, page 155)

E: LUT control (→7.2.3, page 156)

F: Enhancement control (→7.2.4, page 158)

G: Dynamic Range Adjustment control (→7.2.5, page 159)

H: Noise Reduction control (→7.2.6, page 161)

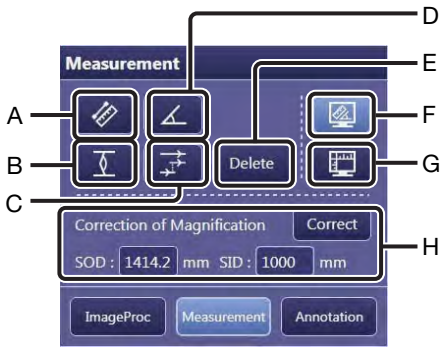
I: Grid Suppression control (→7.2.7, page 162)

J: Sharpness Adjustment control (→7.2.8, page 163)

K: Peripheral Mask control (→7.2.9, page 164)

L: [Save as Default] (→7.2.1, page 154)

1.4.10 Measurement panel



A: Measure distance button (→6.3.1, page 129)

B: Measure Cobb angle button (→6.3.3, page 132)

C: Measure height difference button (→6.3.4, page 134)

D: Measure angle button (→6.3.2, page 131)

E: [Delete] (→6.3, page 129)

F: Show/hide object selector (→6.3, page 129)

G: Show/hide scale selector (→6.3, page 129)

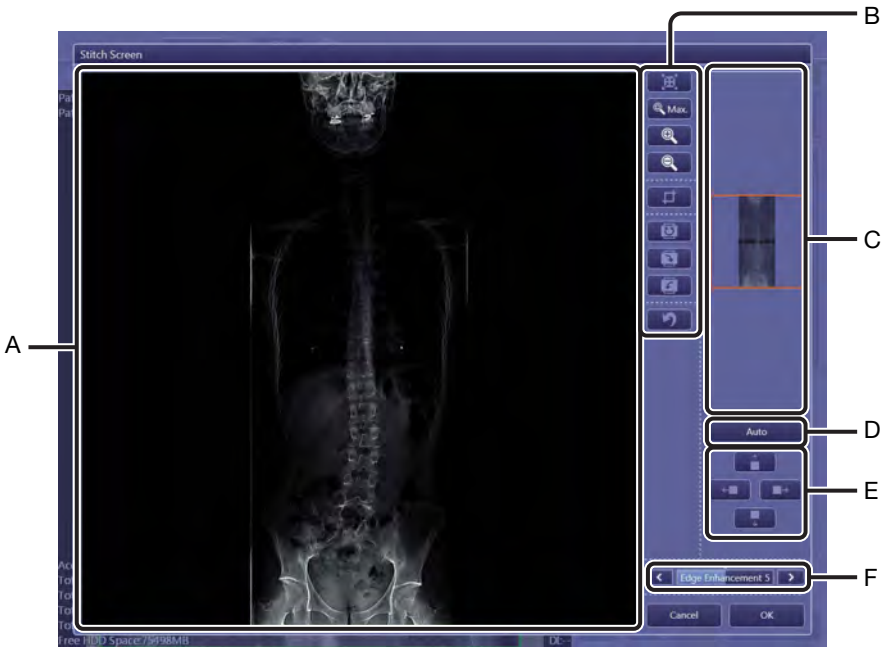
H: Correction of Magnification option (→6.3.1, page 129)

1.4.11 Annotation panel

A: [Add/Edit] (→6.4.1, page 136)

B: [Enlarge], [Reduce], [Delete] (→6.4.1, page 136)

1.4.12 Stitch Screen



A: Image view pane (→8.3.1, page 175)

B: Toolbar (→8.3.1, page 175)

C: Image overview pane (→8.2, page 168)

D: [Auto] (→8.3.1, page 175)

E: Arrow buttons (→8.3.1, page 175)

F: Edge Enhancement control (→8.3.1, page 175)

2 Starting and Shutting Down the Software

2.1 Starting the Software

2.2 Shutting down the Software

2.3 Conducting offline examinations

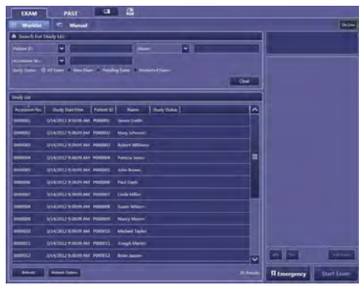
2.4 Utilizing peripheral devices

This chapter explains how to start and shut down the Software.

Overview

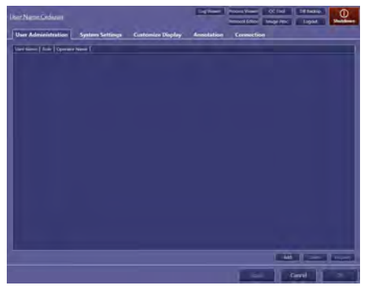
Start screen

2.1 Starting the Software



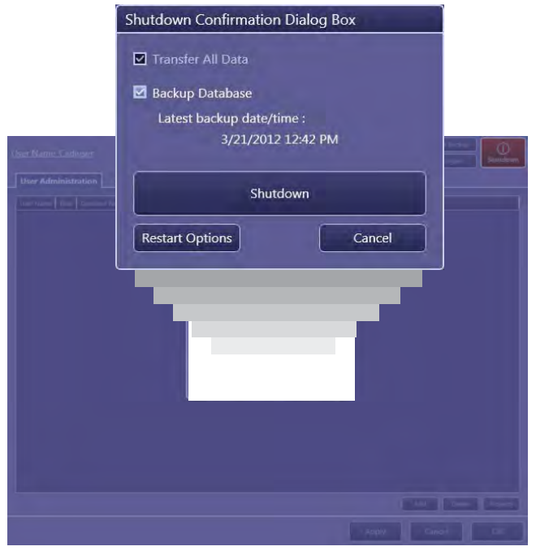
[EXAM > Worklist] screen

Selecting study orders (Worklist tab) (see 3.1)

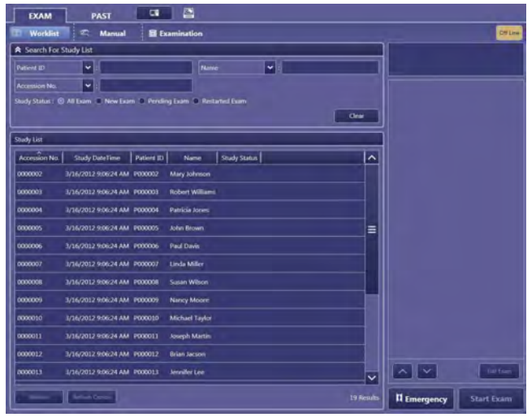


System setup screen

System setup screen (refer to chapter 2 in the Setup Guide)



2.2 Shutting down the Software



2.3 Conducting offline examinations

Inspecting/maintaining the system

NOTE: Regular inspection and maintenance of a medical imaging system is required to assure the strict image quality. For details on operation, refer to 3.5 in the Setup Guide.
The frequency of adjustment work required using the QC Tool, such as calibration, will differ depending on the detector type. For details, refer to the Digital Radiography CXDI series User's Manual.

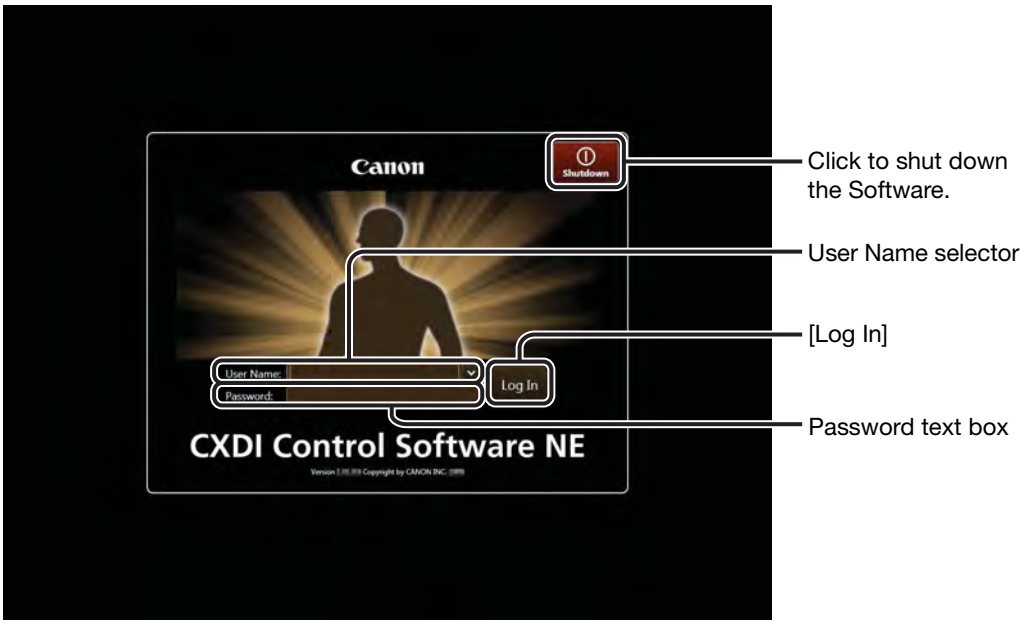
2.1 Starting the Software

1 Turn the power box and the image-capture computer on.

The start screen appears. For details on operation, refer to the hardware operation manual.

2 Log in to the Software.

Select the user name, type the password, and then click [Log In].



Start screen

NOTE: Another start option that does not require user authentication is also available. For details, consult your service engineer.

To modify the user authentication settings

The system setup screen allows users to change, add or delete user names and change passwords. To add or delete user names, it is necessary in advance to log in to the Software under a user name that has the Administrator role.
For details, refer to 2.2 in the Setup Guide.

Automatic logout function

The Software automatically logs out after 10 minutes of inactivity. To change the setting of the automatic logout function, refer to 2.3.1 in the Setup Guide.

The error button and warning button

An (error button) or (warning button) will appear at the top center of the screen if the Software experiences a problem. If this happens, see 9.1.

2.2 Shutting down the Software

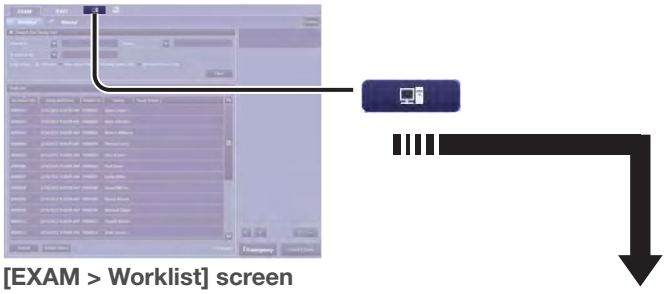
NOTE: It is necessary to shut down the image-capture computer once a day (at closing, etc.), to maintain the optimum performance of the Software.

If a study is currently being examined

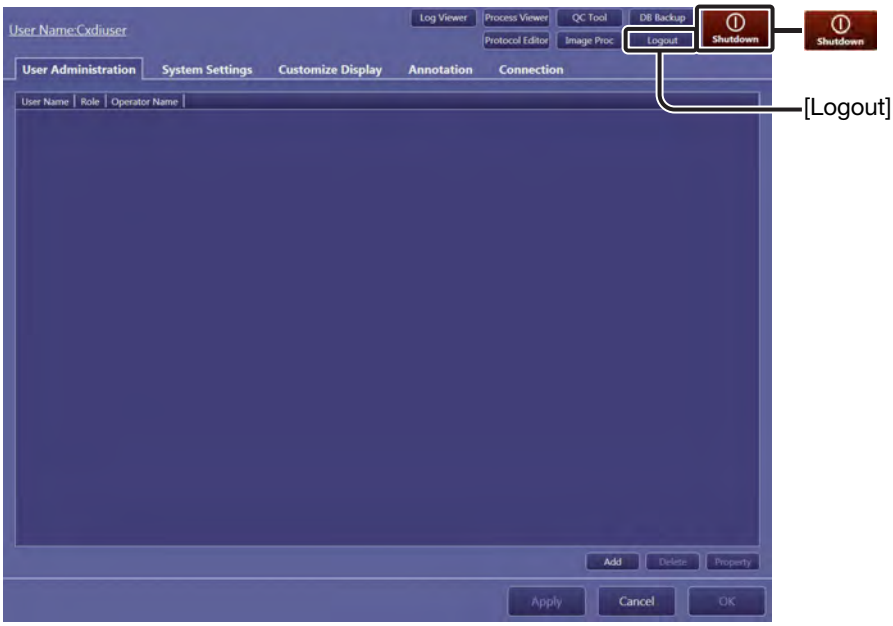
Be sure to click [End Exam] in the examination screen before shutting down the Software. See step 6 in 4.1 for details on [End Exam].

1 Show the system setup screen.

Click .



[EXAM > Worklist] screen



System setup screen

NOTE: A dialog box related to image arrangement may appear. For details, see NOTE in step 4 in 7.1.2.

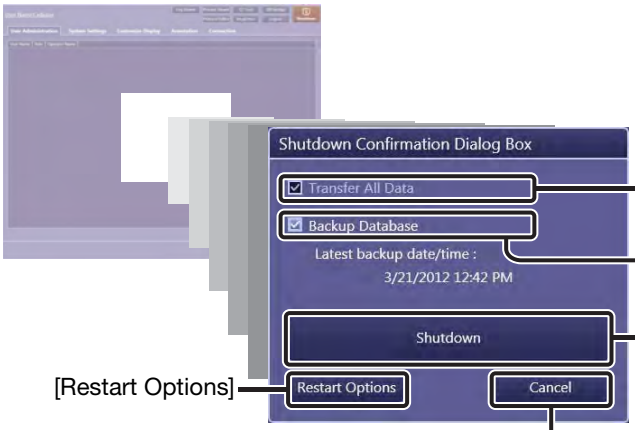
To log in under another user name

Click [Logout], click [OK] in the confirmation dialog box, and then select another user name in the start screen to log in again.

2 Show the Shutdown Confirmation Dialog Box.

Click

.



Shutdown Confirmation Dialog Box

To complete all image data transfer before exiting the Software

Select the Transfer All Data option.

To back up the Software database completely before exiting the Software

Select the Backup Database option.

To exit the Software without data transfer

Clear both the Transfer All Data and Backup Database options.

Continued

3 Exit the Software and shut down the image-capture computer.

Click [Shutdown] in the Shutdown Confirmation Dialog Box.

CAUTION	**Do not turn the image-capture computer off before it automatically shuts down. Doing so may result in damage to the hardware and/or destruction of data.**

To restart the Software without shutting down the image-capture computer

Click [Restart Options], and then click [CXDI Restart] in the recovery mode screen that appears.

Recovery mode screen

To put the image-capture computer to sleep mode

Click [PC Sleep] in the recovery mode screen. The computer enters low-power mode and the monitor display enters standby mode. As the memory contents are preserved during sleep mode, the computer quickly resumes working.

To put the image-capture computer to hibernation mode

Click [PC Hibernate] in the recovery mode screen. The HDD of the computer and monitor display turn off. As the memory contents in recovery mode are preserved during hibernation mode, the computer resumes working faster than restarting the computer.

NOTE: Do not enable sleep or hibernation mode using the power switch on the image-capture computer.

NOTE: The image-capture computer resumes in recovery mode from sleep or hibernation.

NOTE: [PC Sleep] and [PC Hibernate] can be hidden. For details, consult your service engineer.

To exit the Software and restart the image-capture computer

Click [PC Restart] in the recovery mode screen.

NOTE: When [Shutdown] in the recovery mode screen, as well as [Shutdown] in the Shutdown Confirmation Dialog Box, is clicked, the Controller is exited.

If the Software is unexpectedly aborted and the recovery mode screen appears

Click [CXDI Restart] to restart the Software and continue operations.

NOTE: If an error persists after restarting the Software by clicking [CXDI Restart], restart the image-capture computer.

2.3 Conducting offline examinations

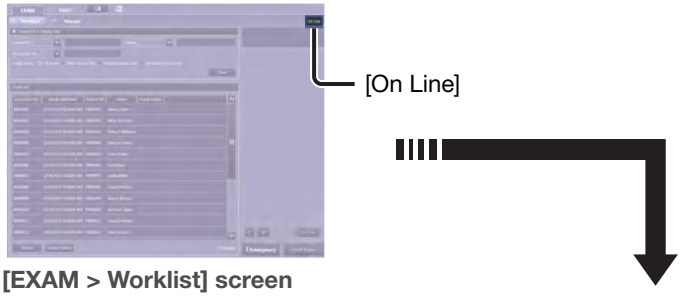
When the Software is used in a mobile system, the Software can operate without connection to the HIS/RIS database. In such cases, follow the steps below.

1 Disconnect from the network.

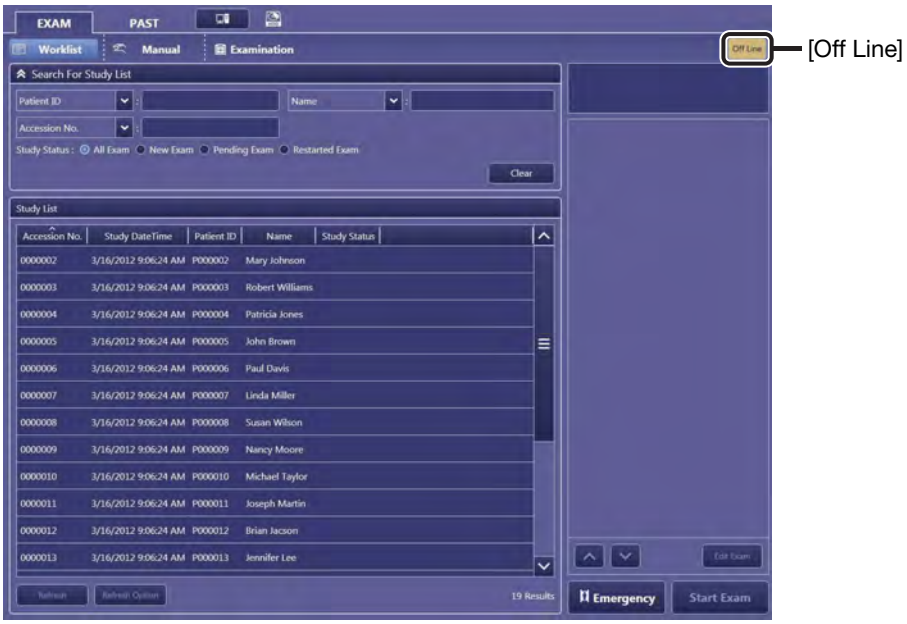
Click [On Line]. Clicking the button toggles between [On Line] and [Off Line].

To resume connection

Click [Off Line].



[EXAM > Worklist] screen



NOTE: Switching to online mode again transfers the images captured during offline mode to the PACS server, storage device, and printer, and also exchanges the study history with the HIS/RIS database.

2.4 Utilizing peripheral devices

The Software supports the use of a bar-code reader, and a magnetic card reader. For details on these devices, refer to the operation manuals supplied with these devices.

3 Preparing for Examinations

3.1 Selecting study orders (Worklist tab)

3.2 Selecting protocols

3.3 Creating study orders (Manual tab)

3.4 Creating emergency study orders (Emergency button)

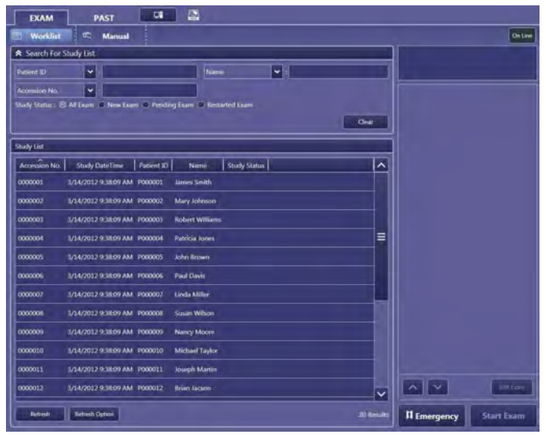
This chapter explains how to prepare for examinations and how to check patient and study* information before capturing images. It is also possible to modify study information details if necessary.

* See 3.1 for details.

Workflow

Start screen

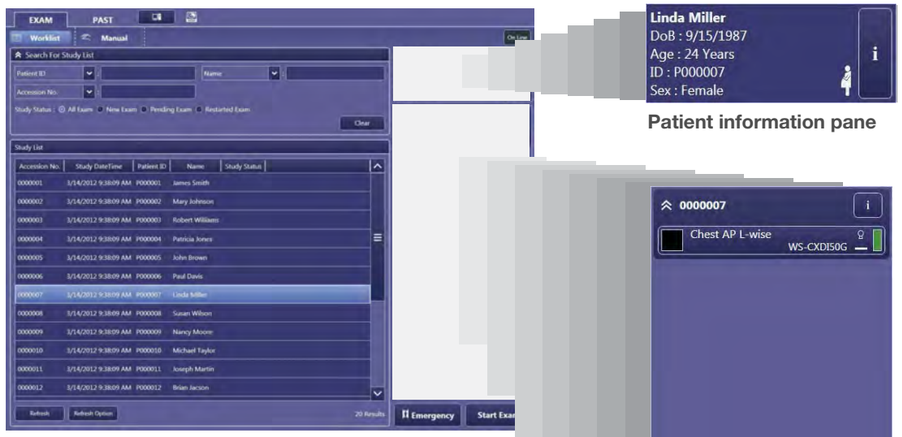
Starting the Software (see 2.1)



[EXAM > Worklist] screen

3.1 Selecting study orders (Worklist tab)

3.4 Creating emergency study orders (Emergency button)



[EXAM > Worklist] screen

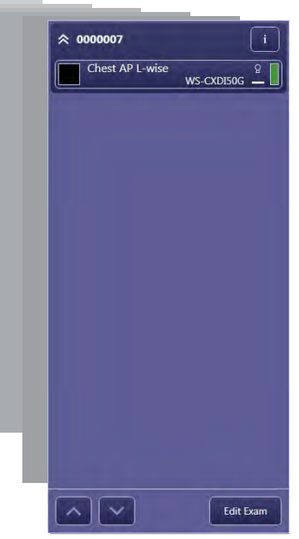
3.1.2 Checking patient/study information in detail

3.1.3 Modifying study information

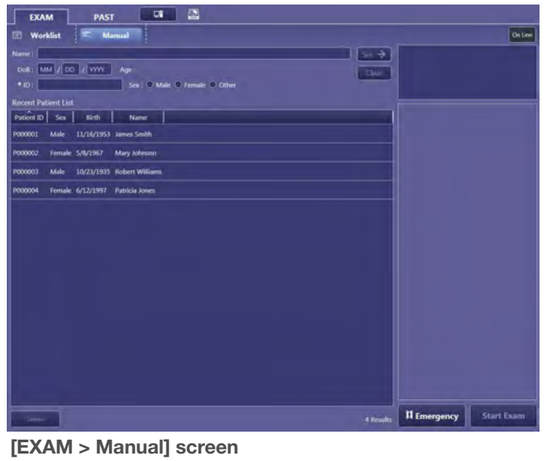
3.1.4 Changing a workspace

3.1.5 Configuring protocols

Patient information pane



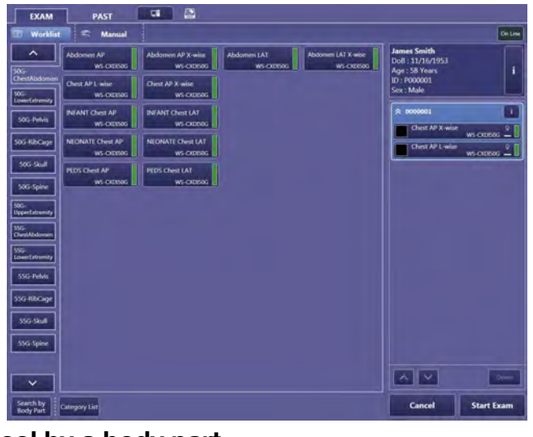
Study information pane



[EXAM > Manual] screen

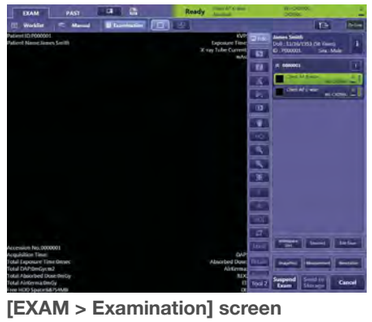
3.3 Creating study orders (Manual tab)

Edit Exam screens



3.2.1 Searching for a protocol by a body part

3.2.2 Searching for a protocol by category



[EXAM > Examination] screen

Conducting Examinations (see chapter 4)

3.1 Selecting study orders (Worklist tab)

Data exchange and updating services between the HIS/RIS database and modalities streamline the examination workflow and maintain steady operation. If the Software does not have these services, create study orders by manually entering patient/study information on the [EXAM > Manual] screen (see 3.3).

Before starting examinations, learn the following basic terms used in the Software.

Study: A request (order) for radiographic examination, consisting of patient information, schedule, and examination details, issued by a referring physician

Exam: A group of studies for one patient

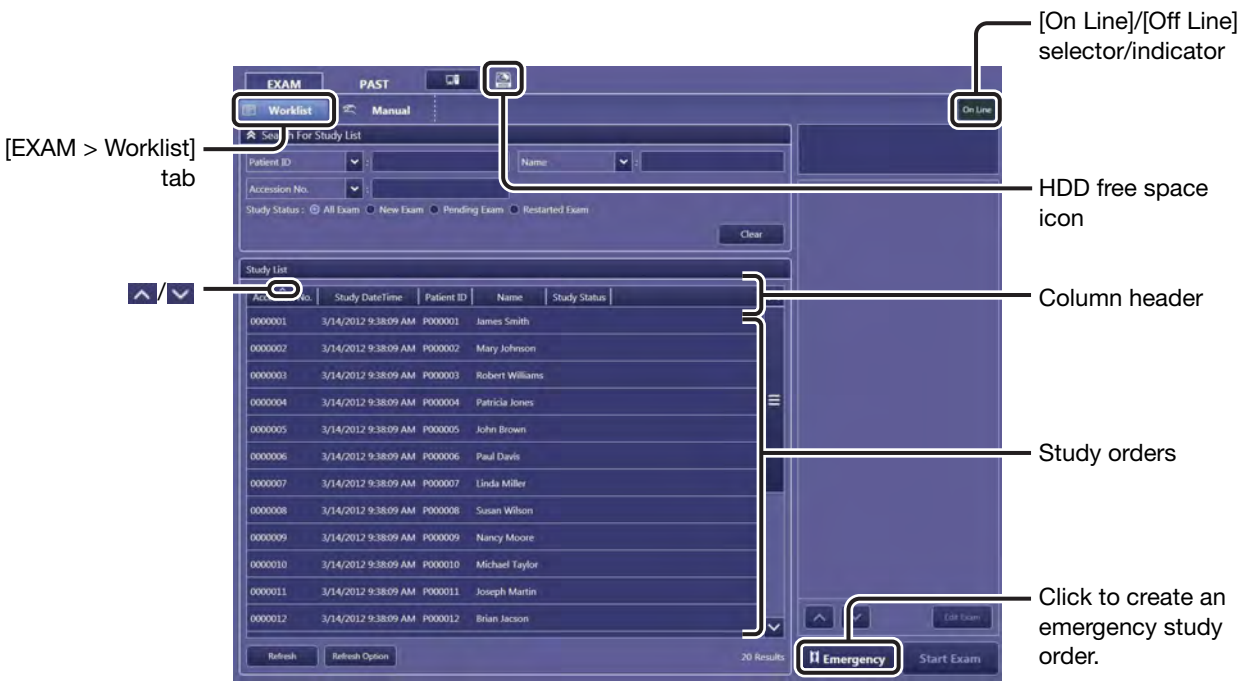
Protocol: Details of examination procedures, which include the following information: Workspace, grid, image processing parameters, and DICOM attributes. In this Software, a protocol is associated with a specific workspace, and that pair is shown as a “protocol” button. In other word, according to the requirements of an individual site, multiple buttons are created for one protocol, and all differ from each other in the workspace. They are organized in protocol lists. Therefore, users can select a pair including a protocol and workspace with one click of these buttons (see 3.1.5).

Workspace: Details of a protocol that specify the detector used and the posture of the patient during the examination

3.1.1 Acquiring study orders from the HIS/RIS database

Study orders are automatically acquired from the HIS/RIS database and listed when the user logs in.

NOTE: An HIS/RIS database introduction is required to list study orders on the worklist. Consult your service engineer for details.



[EXAM > Worklist] screen

If the [EXAM > Worklist] screen does not appear

The [EXAM > Manual] screen may appear instead of the [EXAM > Worklist] screen. In such a case, click the [EXAM > Worklist] tab.

To sort the listed study orders

Click a sort item in the column header. The current order is indicated by ^ (ascending) or v (descending) in the column. To switch between ascending and descending sort order, click the same item again.

To arrange the order of the column headers

Drag an item and drop it in the target position. Dragging the column border also adjusts the width of the column.

NOTE: The items displayed in the column head can be selected in the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

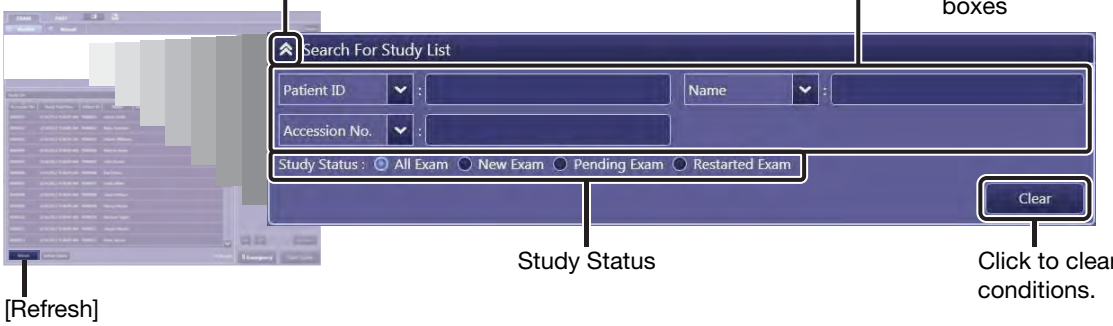
HDD free space icon

To get a good performance of the Software during an examination, check the free HDD space on a regular basis using this icon. If the icon color changes from white to yellow, delete unnecessary studies in the image-capture computer. (If the free space decreases further, the color changes to red.)

Free space
Used space

NOTE: Past study data deletion that starts automatically in the background may affect the Software performance. See 5.3 for details on study deletion and also see step 2 in 3.1.3 on image protection.

1 Narrow down the acquired list items to efficiently select target study orders if necessary.



Click to shrink and expand the pane.
Title boxes and their keyword boxes
Study Status
Click to clear all narrowing conditions.
[Refresh]

Continued

Enter any narrowing conditions in the Search For Study List pane.
Three of the following information titles can be selected for the narrowing conditions: **Patient ID**, **Name**, **Accession No.**, **Referring Physician**, **Requesting Physician**, **Comment**, **RP ID**, **RP Description**, and **SPS Description**. Select an option in each title box, and then enter any text in its keyword box. Note that these three keywords are used as AND search conditions.

Study Status: Specifies the search range from among **All Exam**, **New Exam**, **Pending Exam**, and **Restarted Exam**.

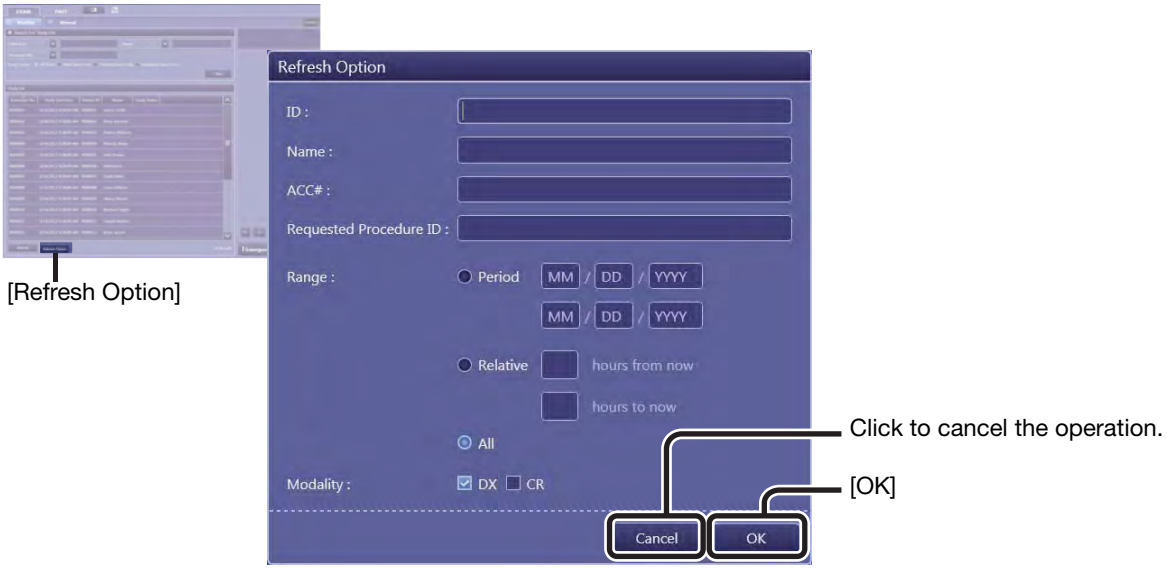
NOTE: The information titles that can be selected for the narrowing conditions are those currently displayed in the column header. For details on the column header settings, refer to the Column Headers option under 2.4.1 in the Setup Guide.

NOTE: Patient Name text box can be divided into five components for accommodating family name, given name, middle name, prefix, and suffix input. For details, refer to 2.4.1 in the Setup Guide.

If the target study orders are not found on the list

Click [Refresh] to restore the available study orders.
If narrowing conditions are predetermined, narrowing down at the point of data acquisition aids in efficient study order selection.
Click [Refresh Option] to show the Refresh Option dialog box.

NOTE: When [Refresh] and [Refresh Option] are disabled, click [Off Line] to resume connection with the HIS/RIS database.



Refresh Option dialog box

Enter any narrowing conditions in the Refresh Option dialog box, and then click [OK].

ID: Patient ID

Name: Patient name

ACC#: The accession number is automatically given to each study order at the point of issue. This number can also serve as the study title. Refer to “Study Information Display” in 2.4.1 in the Setup Guide.

Requested Procedure ID:
Identifier that identifies the Requested Procedure in the Imaging Service Request.

Range: **Period** refers to the period of time in which the study orders are to be conducted. **Relative** refers to a period relative to the current time in which the study orders are to be conducted, specified by hours in the past/future. To clear the Range condition, select the **All** option.

Modality: **DX** refers to digital X-ray radiography, and **CR** to computed radiography.

CAUTION **Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

2 Select the target study order.

Click the target study order to highlight. The selected study orders are listed in the study information pane.

Multi-selection for ease of operation

With a click of one study order in the list, study orders with the same descriptions for five categories - Patient ID, Name, Birth (date), Sex, and Input data type* - will automatically be selected. To deselect unwanted study orders from the selection, click each order in turn.
* Indicates either HIS/RIS originated or manually created data

3 Start examination.

Proceed to “4 Conducting Examinations.”

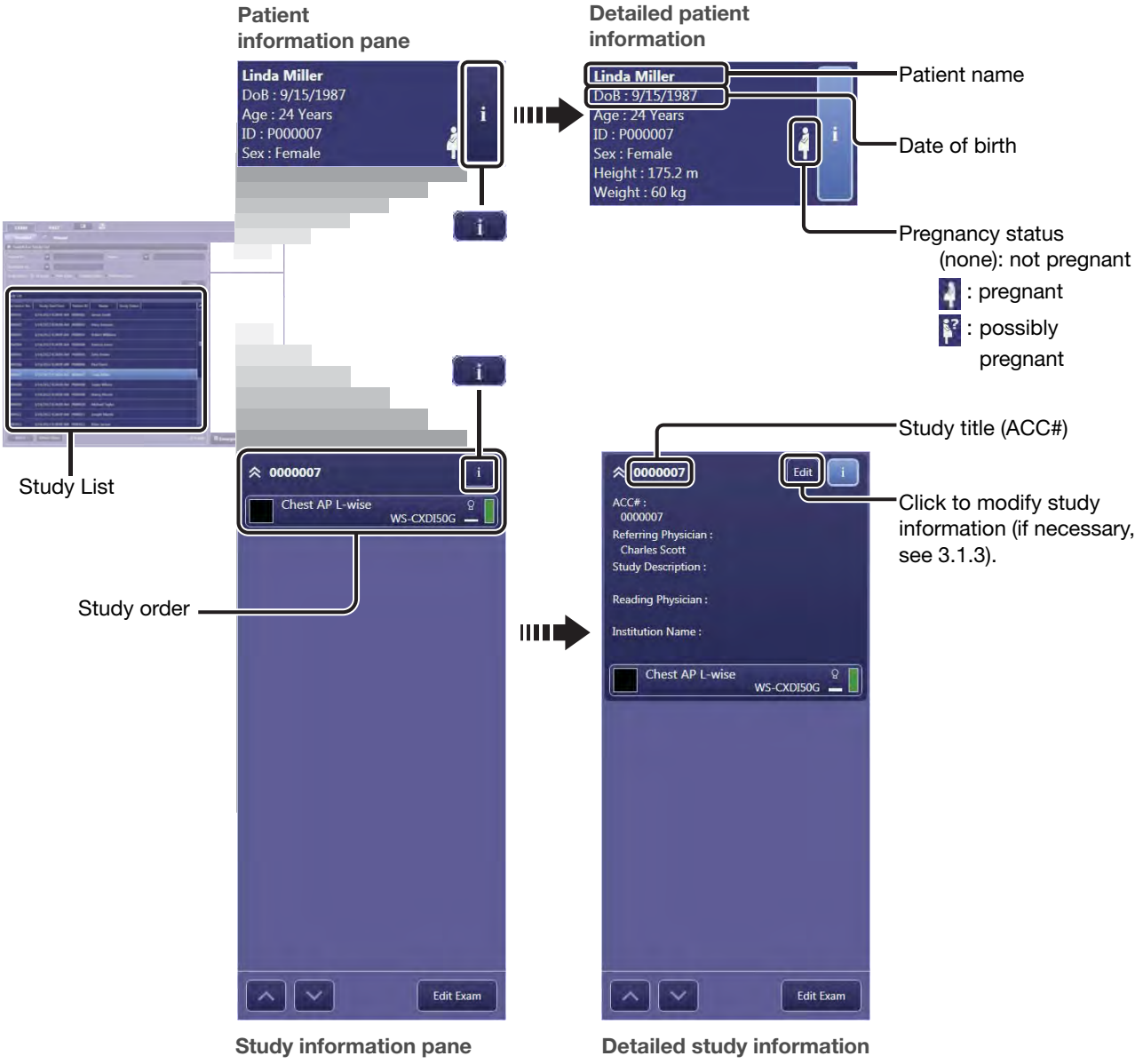
If a dialog box appears indicating that the protocol includes an unknown code value

Consult your service engineer to create the protocol applicable to the unknown code value.

3.1.2 Checking patient/study information in detail

1 Select a study order.

Click a study order in the Study List.

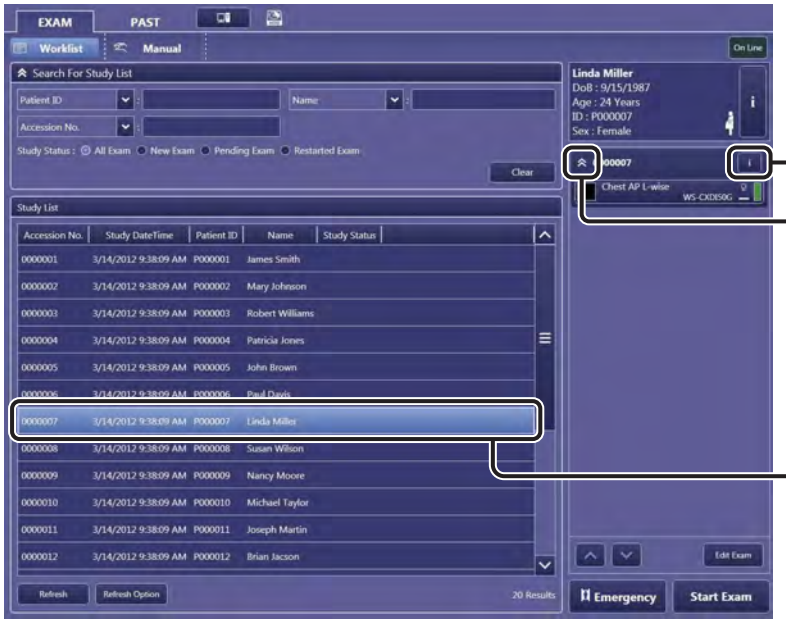


2 Show the detailed information.

Click i in the patient information pane or i on the target study order. To hide the detailed information, click it again.

3.1.3 Modifying study information

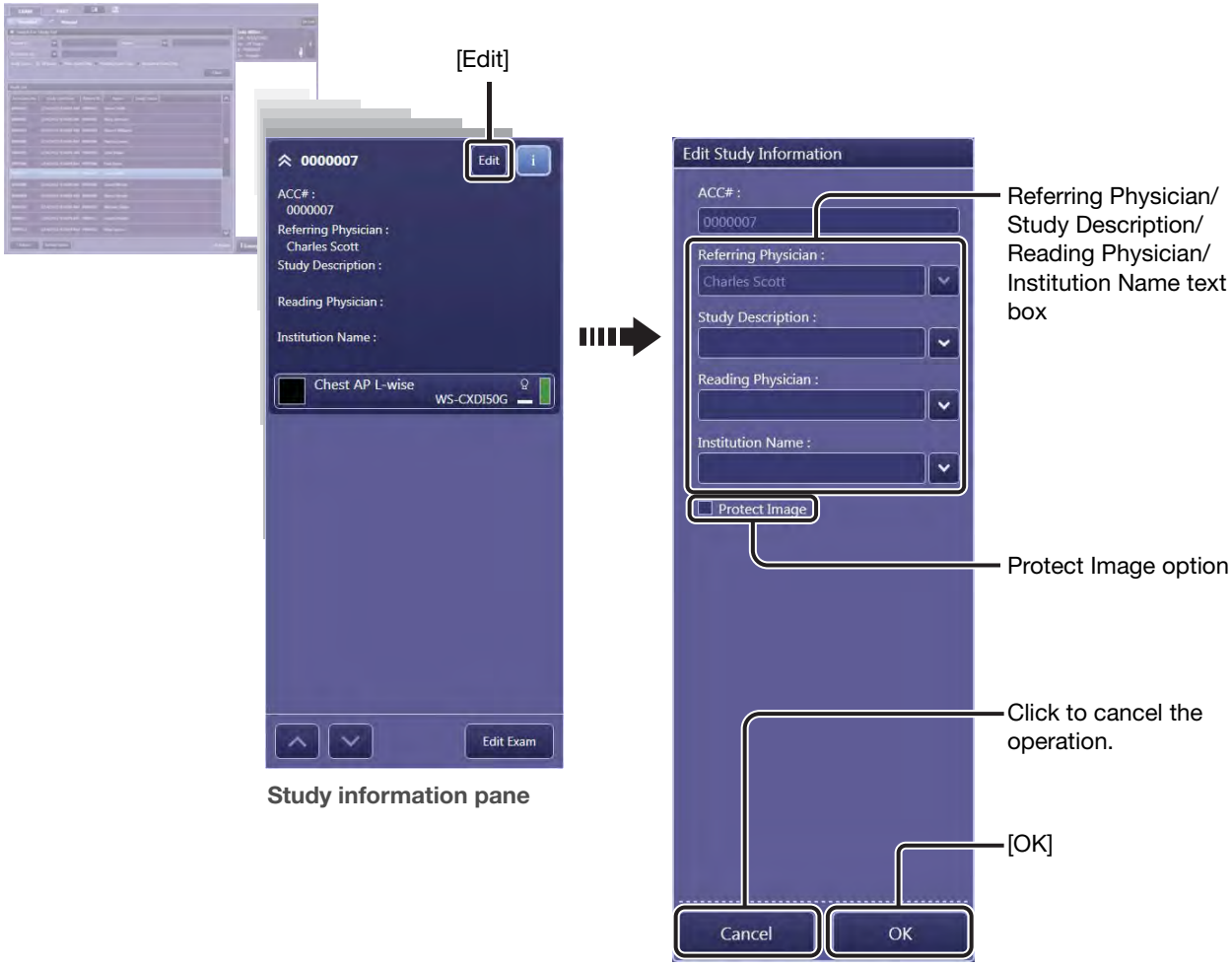
If necessary, the ordered study information can be modified before examination.



Continued

1 Show the Edit Study Information dialog box.

Select the target study order in the Study List, and then click i on the target study in the study information pane, and then click [Edit].



Study information pane

2 Modify the study information.

Modify information in the Study Description text box (up to 64 characters). Preset descriptions can be selected from the drop-down list, as well as by entering a description in the text boxes.

NOTE: Grayed-out information in the Edit Study Information dialog box cannot be modified.

NOTE: Other study information items, such as Requesting Physician and Study Instance UID, can be configured to be shown in this dialog and modified in this step. For details, refer to 2.4.1 in the Setup Guide.

NOTE: Frequently used descriptions for some study information items can be preset. For details, refer to 2.4.2 in the Setup Guide.

To protect the stored images

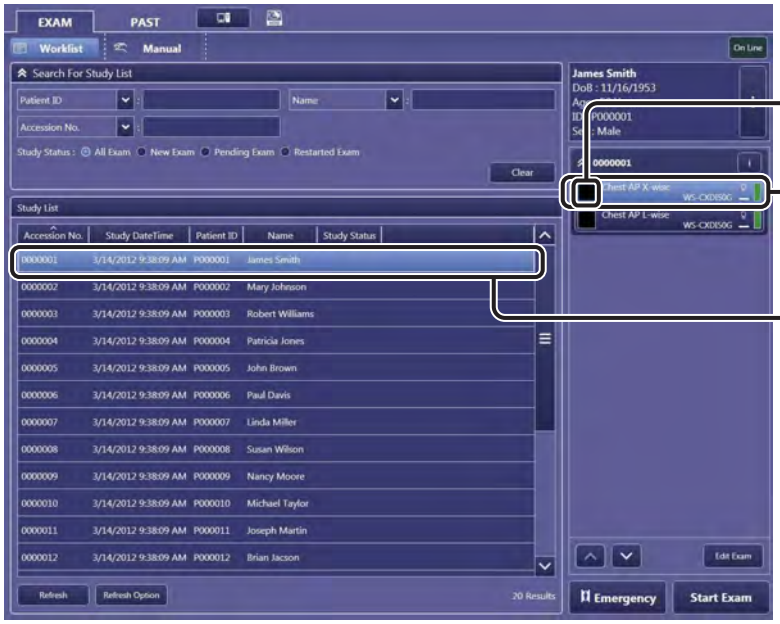
To maintain a certain amount of free space in the local storage directory of the image-capture computer, stored images except for those being reviewed on the [EXAM > Examination] or [PAST > View] screen will automatically be deleted on a study basis, beginning with the oldest one, as the amount of data exceedingly increases. To prevent images from being deleted, select the Protect Image option. To cancel, clear the option.

3 End modification.

Click [OK].

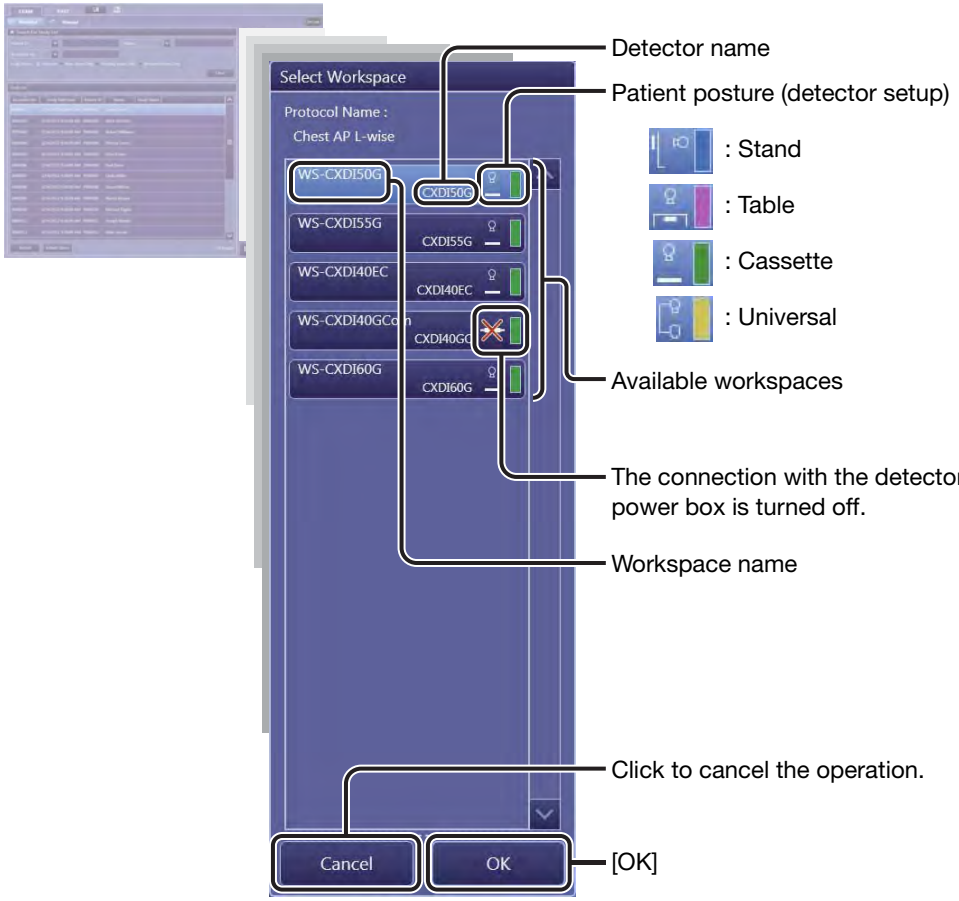
3.1.4 Changing a workspace

If necessary, the ordered workspace can be changed before examinations. When two or more detectors are connected to the system, detectors can be switched by changing the workspace.



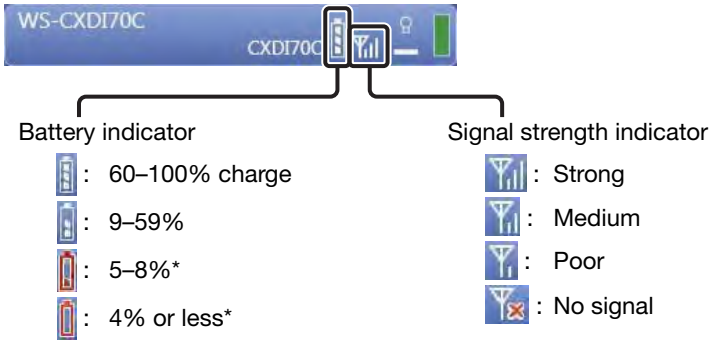
1 Show the Select Workspace dialog box.

Select a study order, and then double-click the thumbnail in the target protocol in the study information pane.



NOTE: A battery indicator and a signal strength indicator are shown on the workspace for wireless detectors. For the wireless detector, refer to the Digital Radiography CXDI series User's Manual.

Example of workspace indicator for wireless detectors



* When the indicator changes to or and it starts to flash, a warning or error dialog box appears to prompt the user to recharge the battery.

2 Select the target workspace.

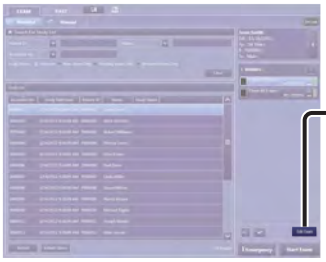
Click the target workspace, and then click [OK].

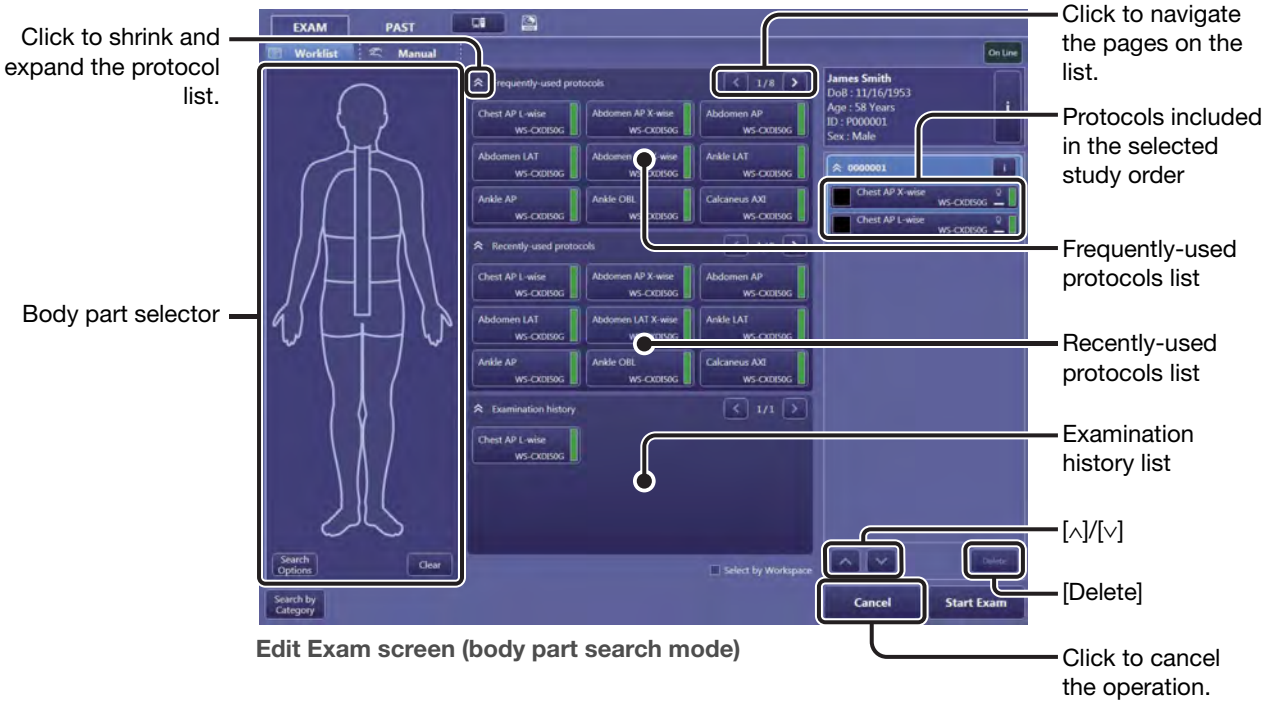
3.1.5 Configuring protocols

Study orders are modified by including additional protocols, deleting existing protocols, or arranging the order of existing protocols.

1 Show available protocols.

Select a study order, and then click [Edit Exam] in the study information pane.





Edit Exam screen (body part search mode)

Continued

2 Configure protocols.

To include an additional protocol in the study order

Click a target protocol in a preferred protocol list. The selected protocol appears at the bottom of the protocol list in the study information pane. To specify an insertion point, click to highlight a protocol in the study information pane before clicking the additional target protocol. The additional protocol is inserted just below the highlighted protocol.

NOTE: In body part search mode, up to three types of protocol lists (Frequently-used protocols, Recently-used protocols, and Examination history) are available for protocol selection. For details on list operation, see 3.2, and on list configuration, refer to Protocol Settings in 2.4.1 in the Setup Guide. In addition, category search mode is also available (see 3.2.2).

NOTE: The Recently-used protocols list and Frequently-used protocols list cannot be shrunk at the same time.

To delete a protocol

Click a target protocol in the study information pane, and then click [Delete].

To arrange the order of protocols

Click to highlight a target protocol in the study information pane, and then click [∧] or [∨]. Note that the protocols can be moved up or down within a single study.

3.2 Selecting protocols

This Software provides a variety of useful protocol selection methods so that users can easily prepare for examinations and configure protocols.

3.2.1 Searching for a protocol by a body part

1 Specify a target body part.

Click in the body part selector to highlight the target body part.
The protocols in the enabled lists are narrowed down into the focused body part.

NOTE: Two or more parts can be selected.

Edit Exam screen (body part search mode)

To clear the body part conditions

Click the highlighted body part again.

Continued

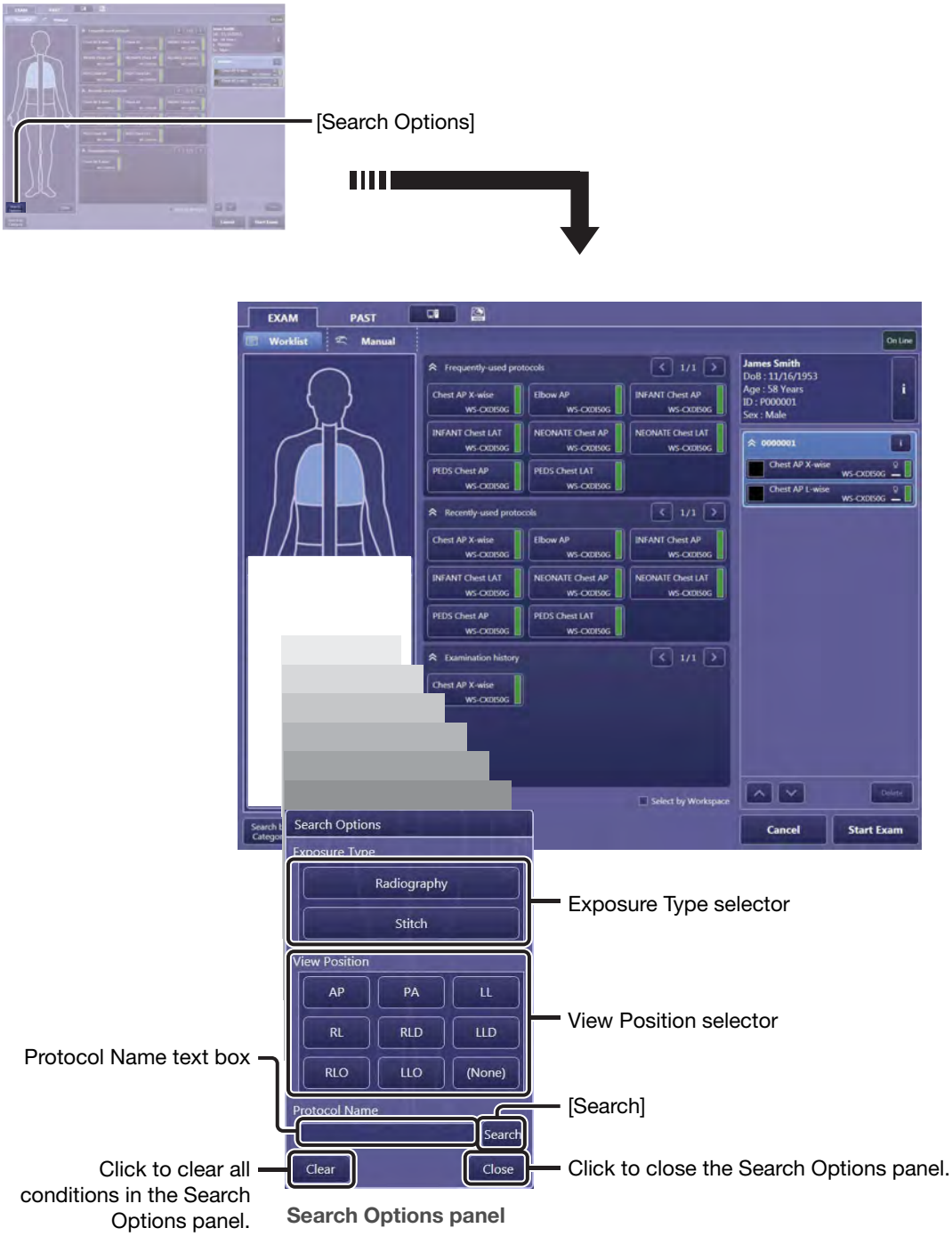
2 Specify detailed narrowing conditions.

If necessary, click [Search Options], and then click target condition buttons to highlight them in the Search Options panel.

Exposure Type: [Radiography] and [Stitch] are available (see 4.1).

View Position: Nine conditions are available.

Protocol Name: Type part or the entire protocol name in the text box and click [Search].



Search Options panel

To clear the detailed conditions

Click the highlighted button again.

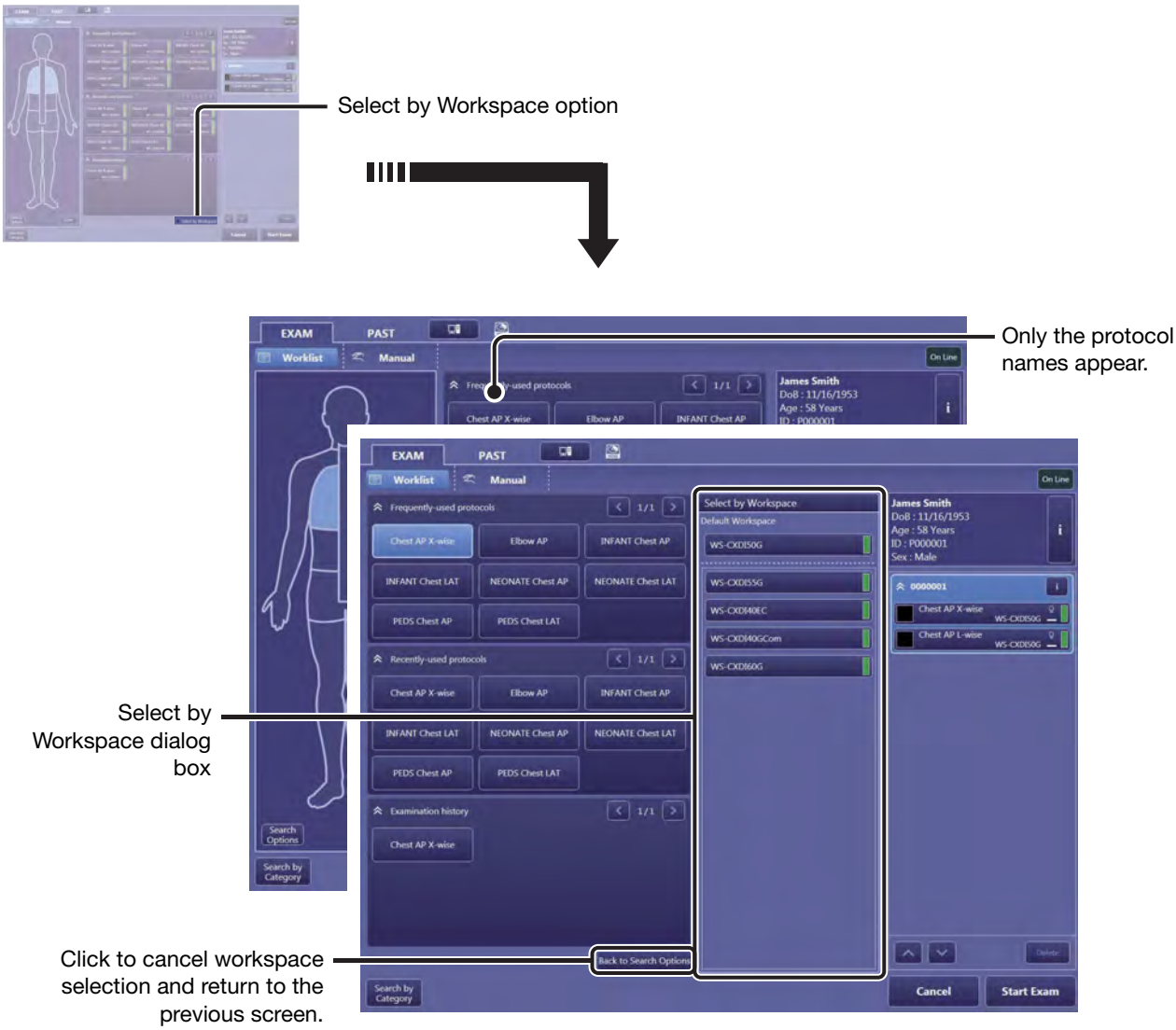
3 Select a target protocol.

If a target protocol appears in a protocol list

Click the target protocol in the protocol list.
The selected protocol appears at the bottom of the study information pane.

If a target protocol does not appear in a protocol list (Select by Workspace option)

Select the Select by Workspace option and click the protocol to show the Select by Workspace dialog box, select the target protocol, and then select the target workspace.
The selected protocol with the desired workspace appears at the bottom of the study information pane.

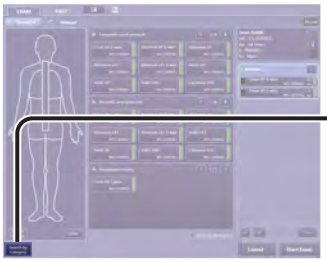


3.2.2 Searching for a protocol by category

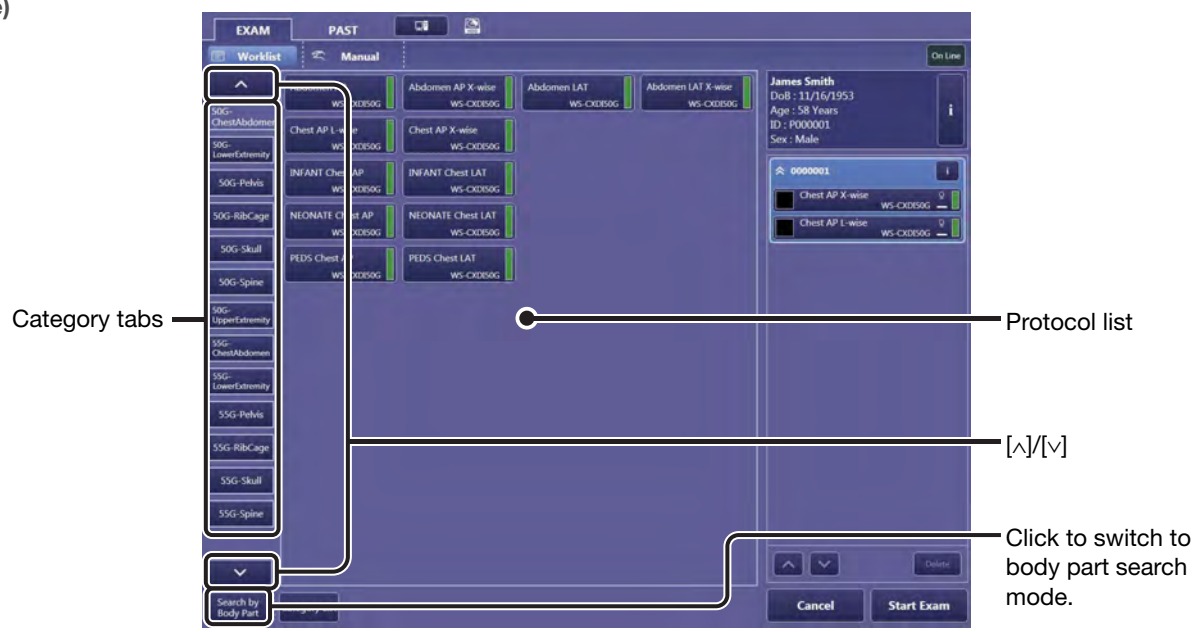
NOTE: PrePack protocols (refer to 3.4.3 in the Setup Guide) can be selected only in category search mode.

1 Enable category search mode.

Click [Search by Category] in body part search mode.



Edit Exam screen (body part search mode)



Edit Exam screen (category search mode)

To select a category tab

If necessary, click [∧] or [∨] to scroll tabs, and then click a target category tab.

To select a protocol list using the category list

Click [Category List], and then click a target category in the list.

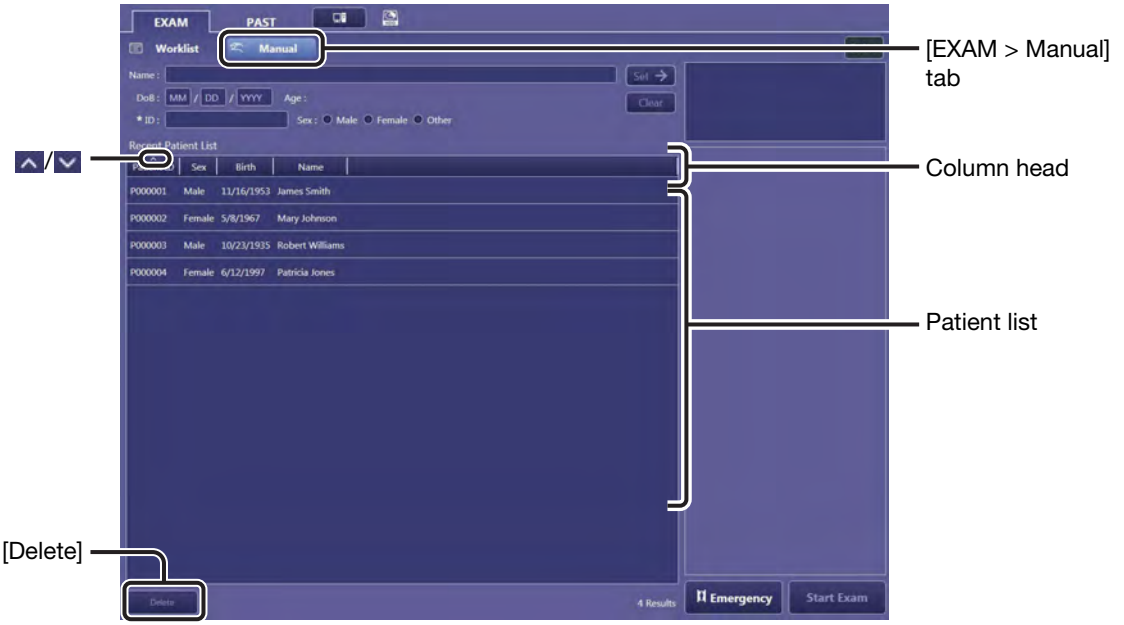
2 Select a target protocol.

Click a target protocol in the protocol list.
The selected protocol appears at the bottom of the study information pane.

3.3 Creating study orders (Manual tab)

Additional study orders can be created using the Software in radiology rooms, and the created studies as well as those acquired from the HIS/RIS database will be conducted.

3.3.1 Registering patient/study information



[EXAM > Manual] screen

The [EXAM > Manual] screen appears when the user is logged in to the Software that does not have data exchange and updating services with the HIS/RIS database.

If the [EXAM > Manual] screen does not appear

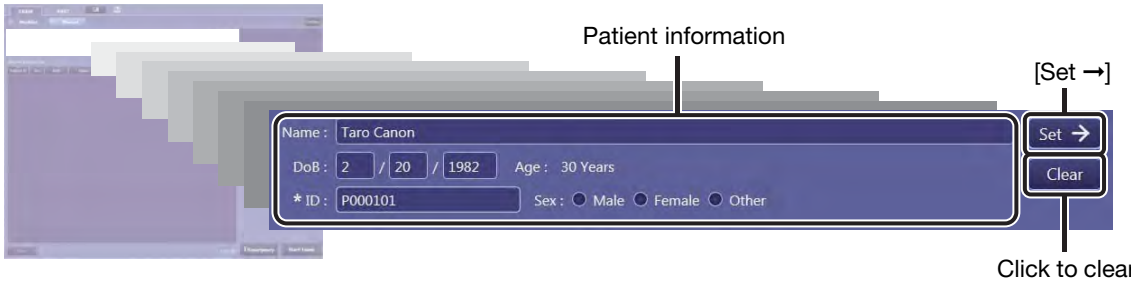
The [EXAM > Worklist] screen may appear instead of the [EXAM > Manual] screen. In such a case, click the [EXAM > Manual] tab.

CAUTION **Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

To delete patient information in Recent Patient List

Click unused patient information to highlight, click [Delete], and then click [OK] in the confirmation dialog box.

1 Enter patient information.



Enter any of the following information in the text boxes and select an option for the **Sex** of the patient.

Name:	Patient name
DoB/Age:	Birth date of a patient (Age will be automatically calculated based on this entry.)/Age of a patient
***ID:**	Patient ID

When the target patient information already exists

Patient information previously created in the [EXAM > Manual] screen appears in the Recent Patient List pane. In such a case, click the target patient information on the list instead of performing step 1 above. For more efficient selection, it is advisable to narrow down the information on the list. Information entry in step 1 above also narrows the selection.

To sort the order of the listed patient information

Click a sort item in the column header. The current order is indicated by ^ (ascending) or v (descending) in the column. To switch between ascending and descending sort order, click the same item again.

To arrange the order of the column headers

Drag an item and drop it in the target position. Dragging the column border also adjusts the width of the column.

2 Set the information.

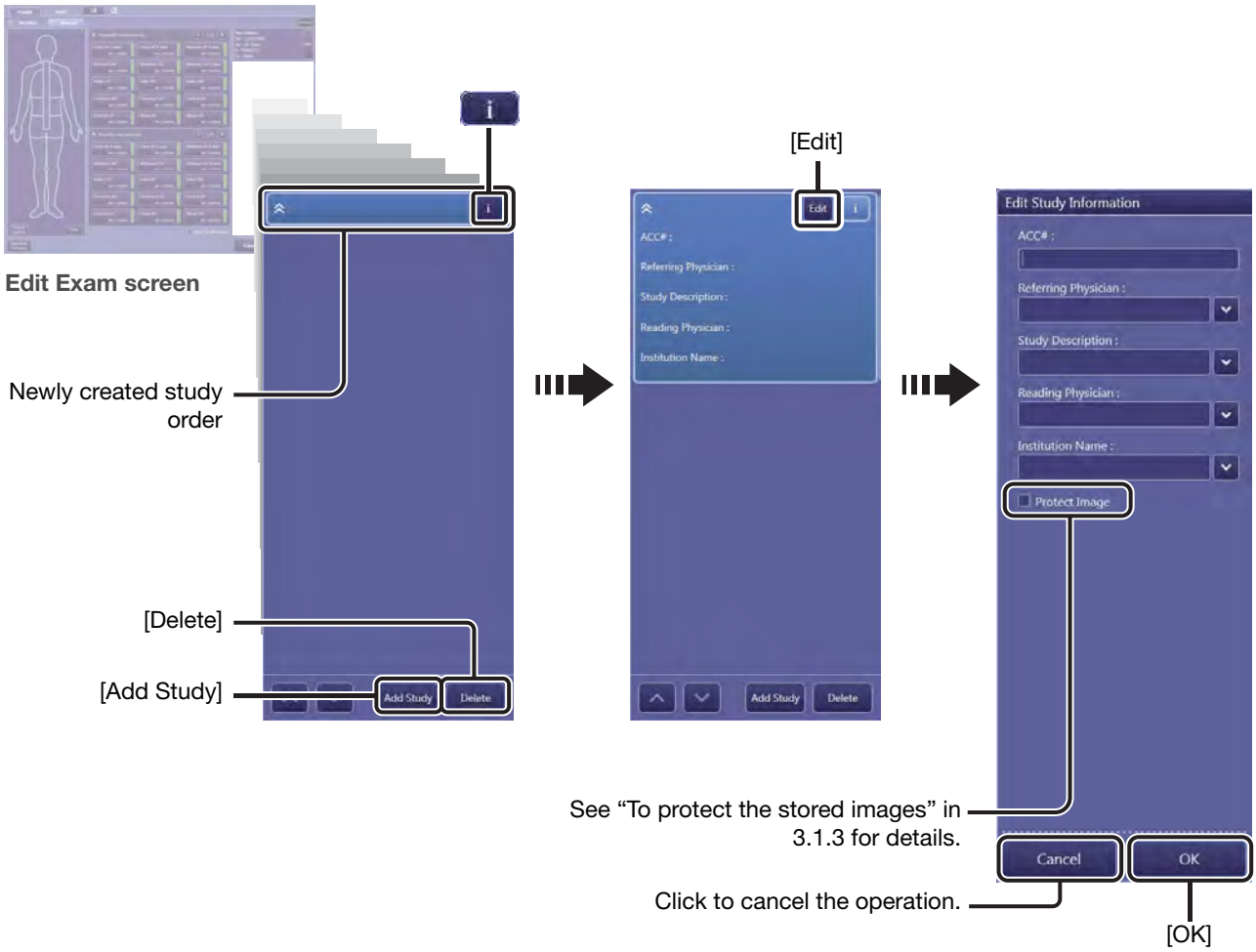
Click [Set →]. The Edit Exam screen appears and a new study order that contains no study information is created in the study information pane.

NOTE: Insufficient entry of ID and items marked with an "*" in step 1 disables [Set →] (refer to 2.4.1 in the Setup Guide for details on the setting of essential information items).

Continued

3 Show the Edit Study Information dialog box.

Click [i] on the newly created study order, and then click [Edit].



4 Enter study information for the newly registered/selected patient.

Select preset descriptions from the drop-down lists or enter descriptions for the following information boxes, select or clear the Protect Image option if necessary, and then click [OK].

ACC#: The accession number is automatically given to each study order at the point of issue.

Referring Physician/Reading Physician:
Enter the relevant physician’s name.

Study Description:
Users can freely enter study information.

Institution Name:
Enter the name of the institution where the examination is conducted.

NOTE: Frequently used descriptions for some study information items can be preset. For details, refer to 2.4.2 in the Setup Guide.

5 Set the detailed study information.

Click [OK].

To add a study order

Click [Add Study].

To delete a study order

Click the target study order to highlight, click [Delete], and then click [OK] in the confirmation dialog box.

6 Configure protocols.

See step 2 in 3.1.5 for details on operation.

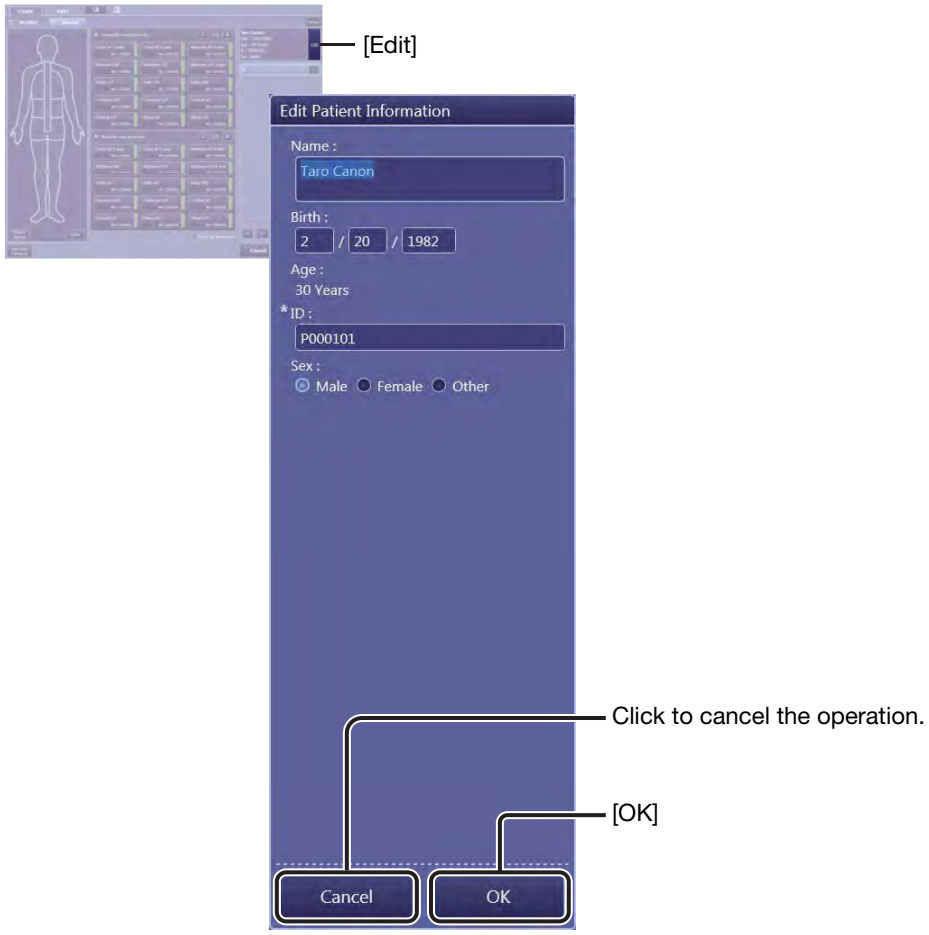
7 Start examination.

Proceed to “4 Conducting Examinations.”

3.3.2 Modifying patient information

1 Show the Edit Patient Information dialog box.

Click [Edit] in the patient information pane.



CAUTION	**Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

2 Modify the patient information.

See step 1 in 3.3.1 for details on operation.

3 Set the information.

Click [OK].

3.3.3 Modifying study information

See steps 3 through 5 in 3.3.1 for details on operation.

3.3.4 Changing a workspace

See 3.1.4 for details on operation.

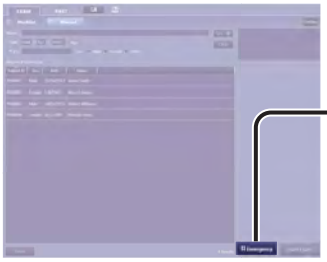
3.4 Creating emergency study orders (Emergency button)

In the case of an emergency, examinations can immediately be started for quick operation. However, patient information details are left unspecified. If necessary, the patient information acquired from the HIS/RIS database can be bound with the resulting images at or after the examination.

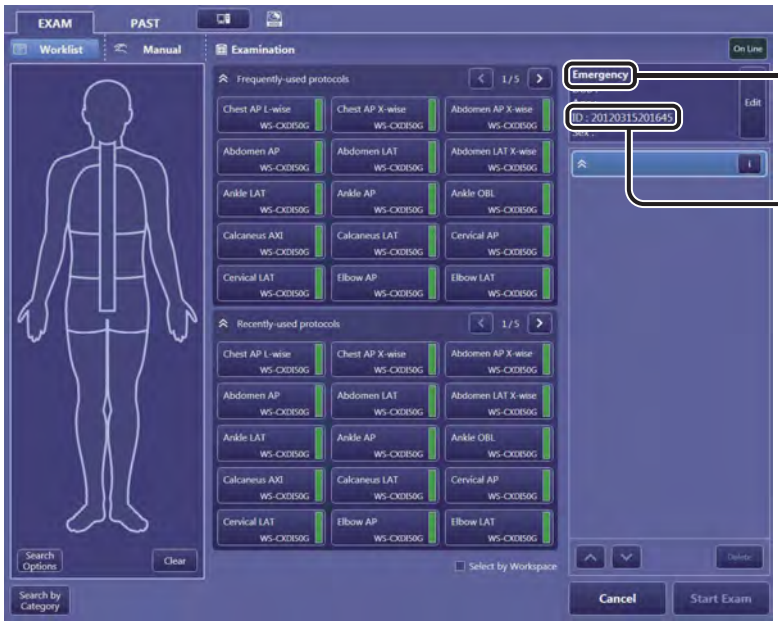
CAUTION	**Be sure to use the [Emergency] button only for an emergency examination. If not heeded, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

1 Create a study order.

Click [Emergency]. A new study order (emergency study) is created in the study information pane, with a temporary patient name and a patient ID automatically entered by the Software.



[EXAM > Worklist] or [EXAM > Manual] screen



2 Select the target protocols.

See step 2 in 3.1.5 for details on operation.

3 Start the examination.

Proceed to “4 Conducting Examinations.”

To bind study information acquired from the HIS/RIS database to the resulting images

Proceed to “4.8 Binding study information with the images of an emergency study” after finishing the examination.

4 Conducting Examinations

4.1 Conducting radiographic examinations

4.2 Replacing an incomplete protocol with another protocol

4.3 Reprocessing an image of a complete protocol

4.4 Recapturing images

4.5 Rejecting images

4.6 Suspending an examination

4.7 Rebinding other study information with that of the suspended study order

4.8 Binding study information with the images of an emergency study

4.9 Adding information to a complete protocol

This chapter explains how to conduct examinations and how to reprocess, retake, or reject images. Furthermore, data binding feature to associate study information with the images of emergency study is explained.

Workflow

[EXAM > Worklist] screen

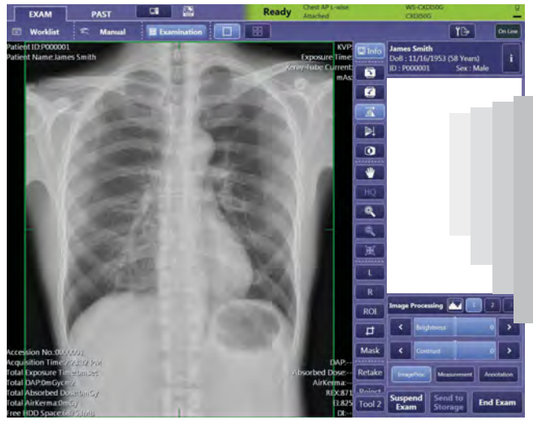
Preparing for Examinations (see chapter 3)

4.7 Rebinding other study information with that of the suspended study order

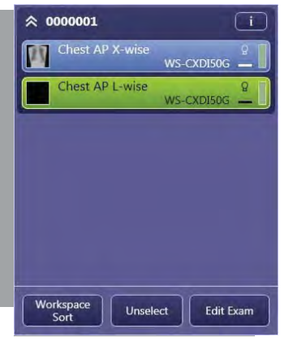
[EXAM > Examination] screen (before capturing an image)

4.1 Conducting radiographic examinations

4.6 Suspending an examination



[EXAM > Examination] screen (after capturing an image)



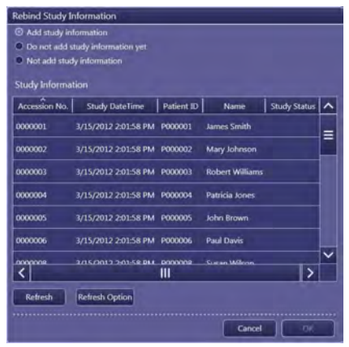
Study information pane

4.4 Recapturing images

4.5 Rejecting images

Image arrangement screen

Arranging and printing images automatically (see 7.1.2)



Rebind Study Information dialog box
(only for emergency studies)

4.8 Binding study information with the images of an emergency study

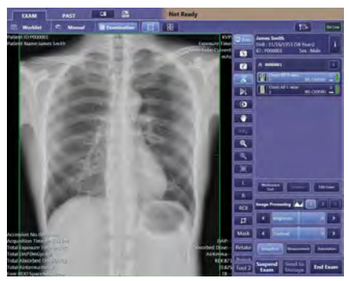
Replace Protocol & Select Workspace dialog box

4.2 Replacing an incomplete protocol with another protocol

Replace Protocol & Series/Image Information dialog box

4.3 Reprocessing an image of a complete protocol

4.9 Adding information to a complete protocol



[EXAM > Examination] screen

Reviewing Images (see chapter 5)

Post-Processing Images (see chapter 6)

4.1 Conducting radiographic examinations

Before starting examinations, learn the following basic terms used in the Software.

Exposure mode:

Mode enabled for every single exposure, categorized by the images created in that mode. Two modes are available and images created in each mode are as follows:

Radiography: Radiographic images
Stitch: Combined images

Exposure type:

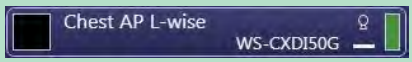
Type of protocols categorized by the available exposure mode. Two types are available.

Radiography: Radiography mode
Stitch: Stitch mode

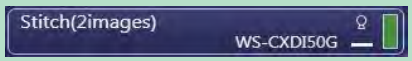
DX (Digital X-ray) protocol:

A generic name for protocols for which the exposure type is Radiography, or Stitch (see chapter 8).

Examples of appearance of incomplete protocols and their features by exposure type



Radiography type
A (ready/preview) thumbnail is displayed to the left of the protocol name.



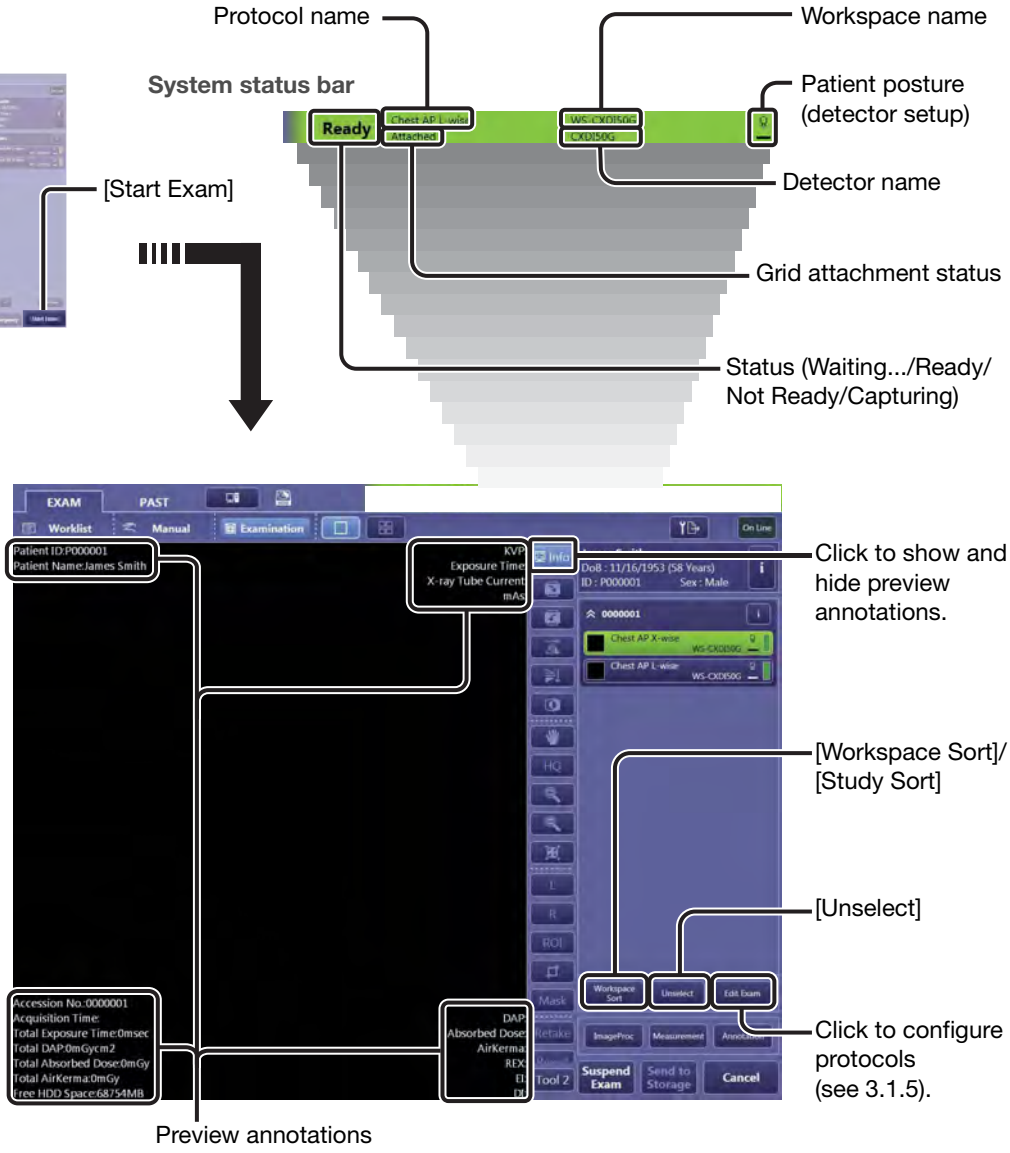
Stitch type
Captures two to four radiographic images and combines them to form a single long length image

CAUTION **Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

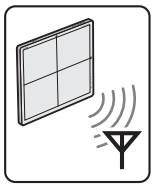
1 Start an examination.

Click [Start Exam].

NOTE: If [Start Exam] does not work even if a study is selected, click [Edit Exam] and add the protocol to the study order.

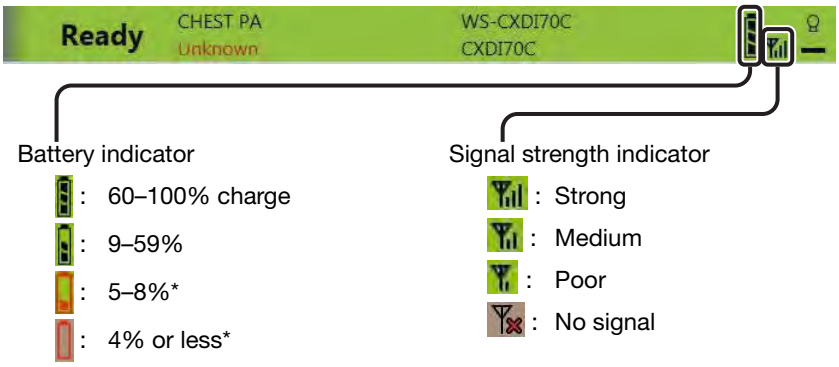


Continued



NOTE: A battery indicator and a signal strength indicator are shown on the system status bar during an examination using a wireless detector. For the wireless detector, refer to the Digital Radiography CXDI series User's Manual.

Example of the system status bar indication while using a wireless detector



* When the indication changes to or and it starts to flash, a warning or error dialog box appears to prompt the user to recharge the battery.

NOTE: When a wide display monitor (not a 4:3 monitor) is used, the image view pane in the [EXAM > Examination] screen can be expanded fully in the vertical direction by shifting the tabs and buttons located above the pane to the right. For details, consult your service engineer.

Protocol sort for efficient workflow

Users can arrange the order of incomplete and complete protocols in the study information pane.

[Workspace Sort]: Groups protocols that have the same workspace across the boundary between study orders.

[Study Sort]: Restores the original order of protocols on the basis of study.

Clicking the button toggles it between [Workspace Sort] and [Study Sort].

NOTE: While image data is being transferred in the background, the data transfer indicator or flashes (see 1.4.1). If the transfer has priority over the examination, wait until the or indicator goes off, and then click [Start Exam].

: appears during data transfer to the PACS server and printers

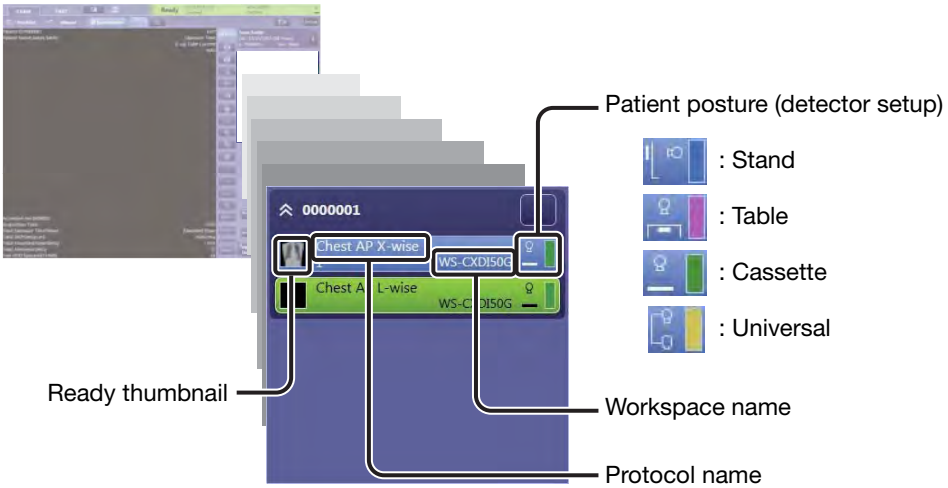
: appears during data transfer to the storage media such as an external HDD

2 Select the target protocol.

If necessary, click the incomplete target protocol in the study information pane and confirm that the indicator changes from **Waiting...** to **Ready** in the system status bar.

NOTE: If the **Not Ready** and indicators appear in the system status bar, check that:
- the detector is attached to the system.
- the cable is securely connected.
- the power box is turned on.

NOTE: The user can choose to have the exposure summary displayed on the right side of the system status bar. For details, consult your service engineer.



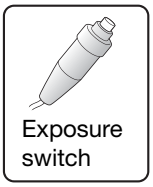
Ready status protocol (highlighted)

3 Arrange the patient in the correct posture.

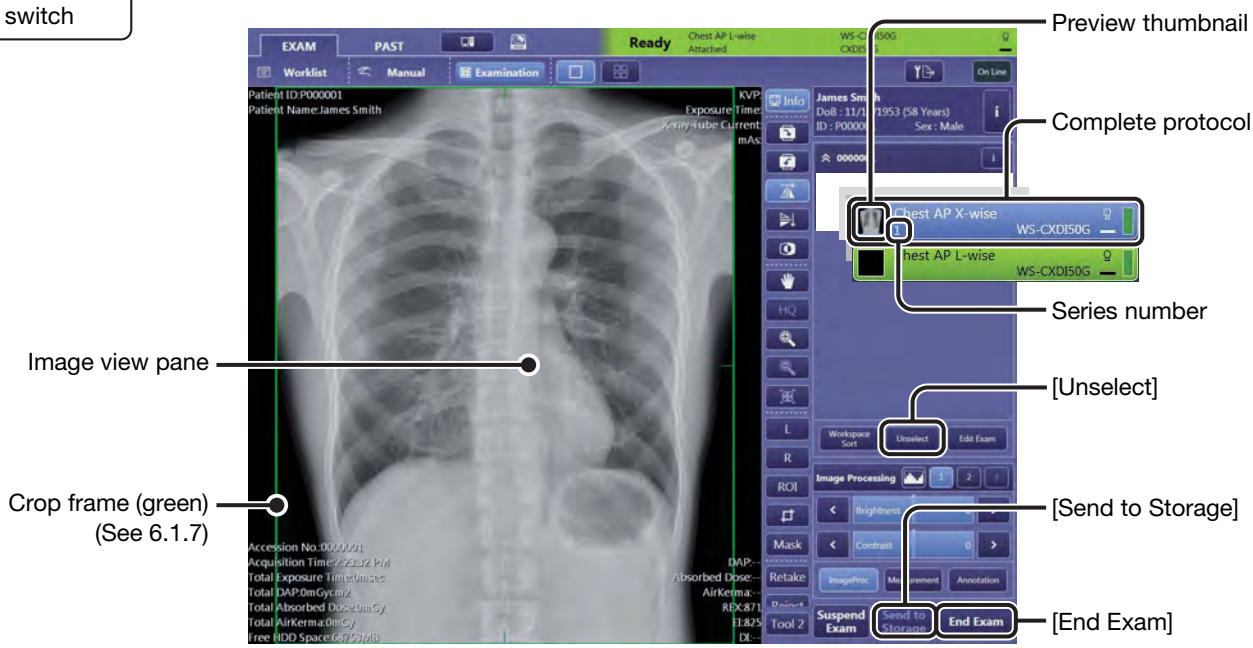
Arrange the patient so that the target body part fits appropriately in the irradiated field and instruct the patient not to move during the examination. If necessary, help the patient to maintain the proper posture.

Continued

4 Perform exposure.



Press and release the exposure switch of the X-ray generator. The **Ready** indicator changes to **Capturing**, and then **Not Ready** in the system status bar. After processing is complete, a preview image appears in the image view pane, and then the next available protocol is automatically highlighted.



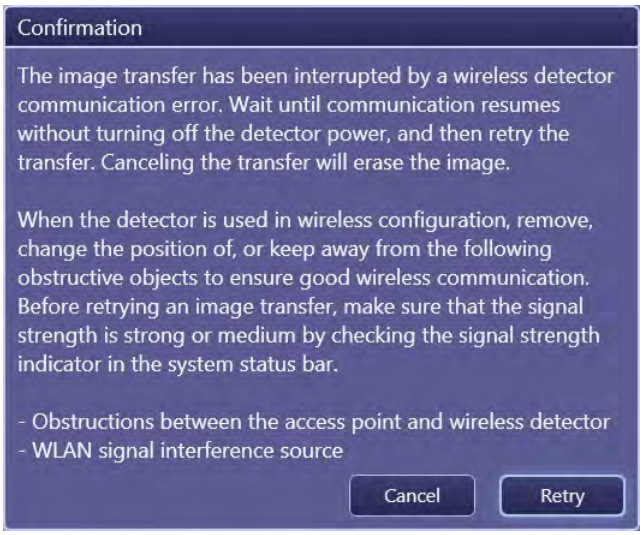
NOTE: The series number that indicates the examination sequence can be changed to a number that indicates the protocol order in the study information pane in descending order. For details, consult your service engineer.

Automatic selection of protocols

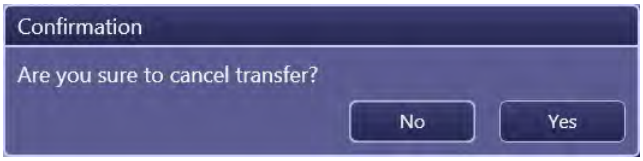
After each protocol is complete, the next available protocol is automatically highlighted. If the user prefers to manually select a protocol, automatic selection can be disengaged and the user can click on an incomplete protocol to select it. For details, refer to the Automatic Next Protocol Selection option under 2.3.1 in the Setup Guide.

If an image transfer has been interrupted

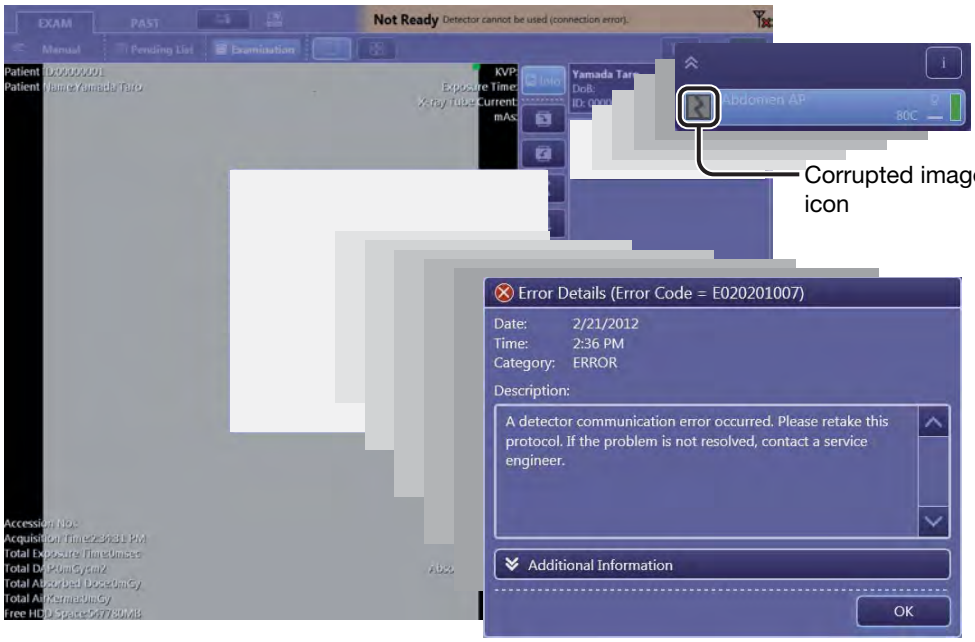
If an image transfer has been interrupted by a wireless detector communication error, the following dialog boxes appear. Follow the instructions and click [Retry] to resume image transfer.


Confirmation
The image transfer has been interrupted by a wireless detector communication error. Wait until communication resumes without turning off the detector power, and then retry the transfer. Canceling the transfer will erase the image.
When the detector is used in wireless configuration, remove, change the position of, or keep away from the following obstructive objects to ensure good wireless communication. Before retrying an image transfer, make sure that the signal strength is strong or medium by checking the signal strength indicator in the system status bar.
- Obstructions between the access point and wireless detector
- WLAN signal interference source
Cancel
Retry

NOTE: If [Cancel] is clicked, the following dialog box appears. Note that the image being transferred will be deleted if [Yes] is clicked in the following dialog box.



When an image is deleted, a corrupted image icon appears on the protocol's thumbnail and a dialog box that prompt the user to retry image transfer appears.


Not Ready
Corrupted image icon
Error Details (Error Code = E020201007)
Date: 2/21/2012
Time: 2:36 PM
Category: ERROR
Description:
A detector communication error occurred. Please retake this protocol. If the problem is not resolved, contact a service engineer.
Additional Information
OK

Error dialog box

Continued

5 Continue the examination.

If any incomplete protocols remain, repeat steps 2 through 4.

Before replacing the detector during the examination

Click [Unselect] to disengage the Ready status of the protocol. Confirm that the Not Ready indicator appears in the system status bar, and then replace the detector. To resume the Ready status, click on an incomplete protocol.

To review captured images during examinations

Proceed to “5 Reviewing Images.”

To perform post-processing

Proceed to “6 Post-Processing Images.”

To transfer captured images to PACS before finishing examination

Click [Send to Storage] to transfer all captured images to the designated PACS. After transfer, the preview thumbnails on the transferred protocols turn sepia in color.

NOTE: The transferred images cannot be modified through the post-processing.

To check the current output settings before finishing an examination

Proceed to “7.1.1 Checking and changing the image transfer settings.”

To enter freely information on examination

See 4.9.

When a detector enters sleep mode

Depending on the detector type, when a detector is left unused for a certain period of time, the Not Ready Detector cannot be used (sleep mode). indicator appears in the system status bar, and all protocols are deselected. To restart the examination, select the protocols again.

NOTE: To reduce power consumption, the Ready status, shown in the system status bar, can be manually canceled. Click [Unselect].

6 Finish the examination.

Click [End Exam]. The image data will be transferred to a preset destination such as a printer (refer to 2.6 in the Setup Guide). During data transfer, the data transfer indicator or flashes (see 1.4.1).
After finishing an examination, captured images can be reviewed on [PAST > View] screen (see 5.2).

When the image arrangement screen appears

Proceed to “7.1.2 Arranging and printing images automatically.”

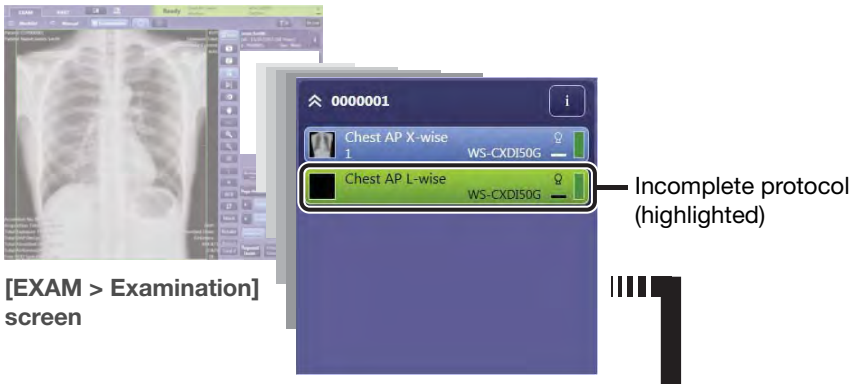
NOTE: Users can finish the examination even if incomplete protocols remain.

4.2 Replacing an incomplete protocol with another protocol

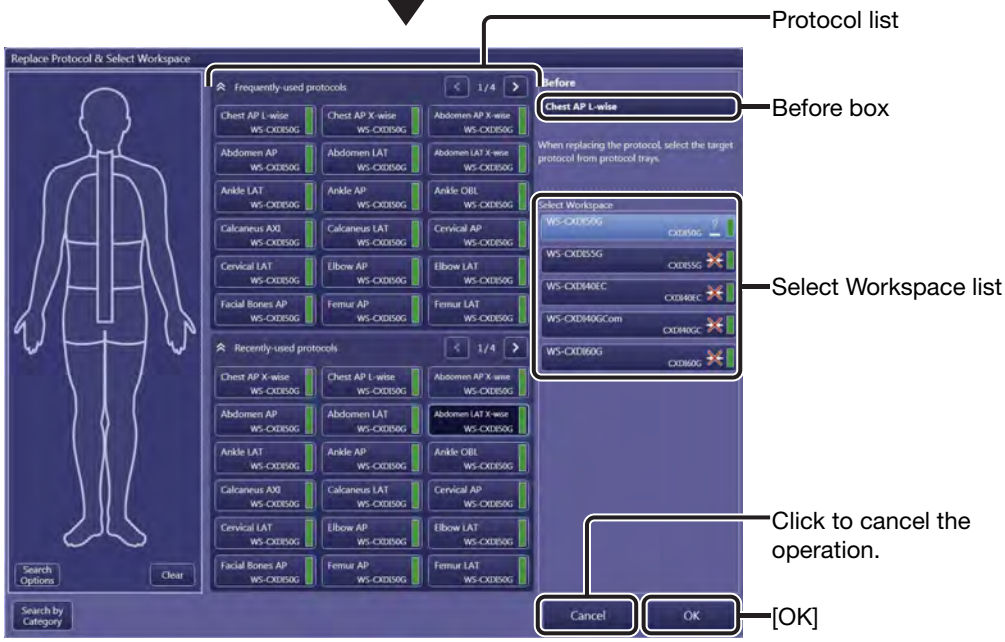
Protocol configuration of Exams can be modified in the [EXAM > Examination] screen using [Edit Exam] as described in 3.1.5. Even after starting an examination, if incomplete protocols remain, they can be replaced with other protocols easily. Furthermore, the protocol's workspace can also be changed.

1 Show the Replace Protocol & Select Workspace dialog box.

Click to highlight the target incomplete protocol and click it again. The selected protocol name appears in the Before box.



[EXAM > Examination] screen



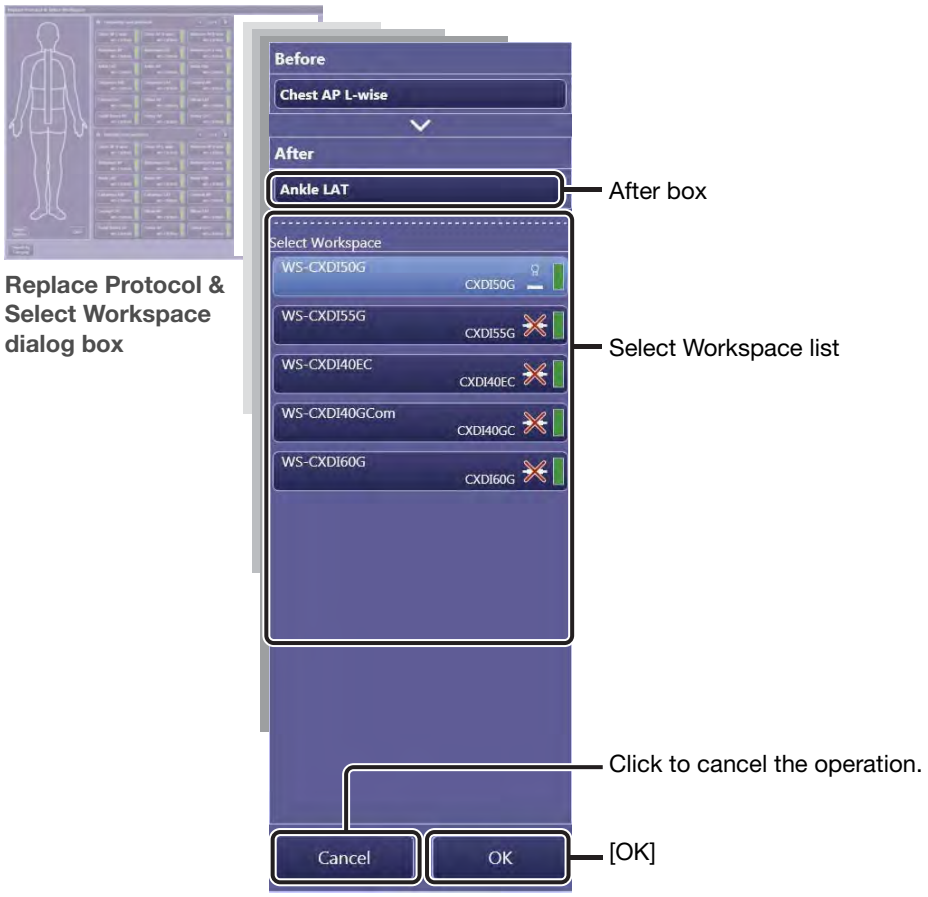
Replace Protocol & Select Workspace dialog box

To simply change the workspace

Select the target workspace in the Select Workspace list, and then click [OK].

2 Select the replacement protocol.

Click the replacement protocol in the protocol list. The selected protocol name appears in the After box.



Replace Protocol & Select Workspace dialog box

To change the workspace for the replaced protocol

Select the target workspace in the Select Workspace list.

3 Set the replacement protocol.

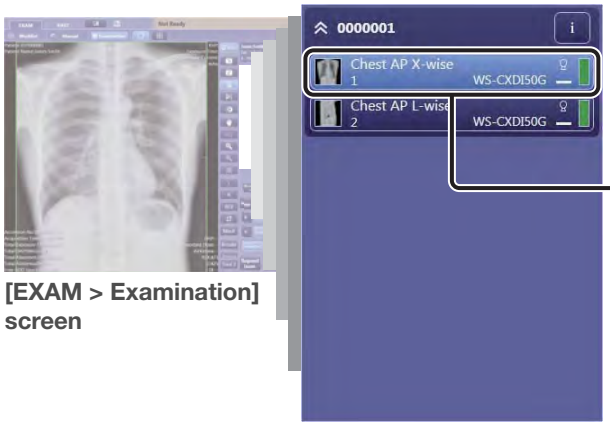
Click [OK].

4.3 Reprocessing an image of a complete protocol

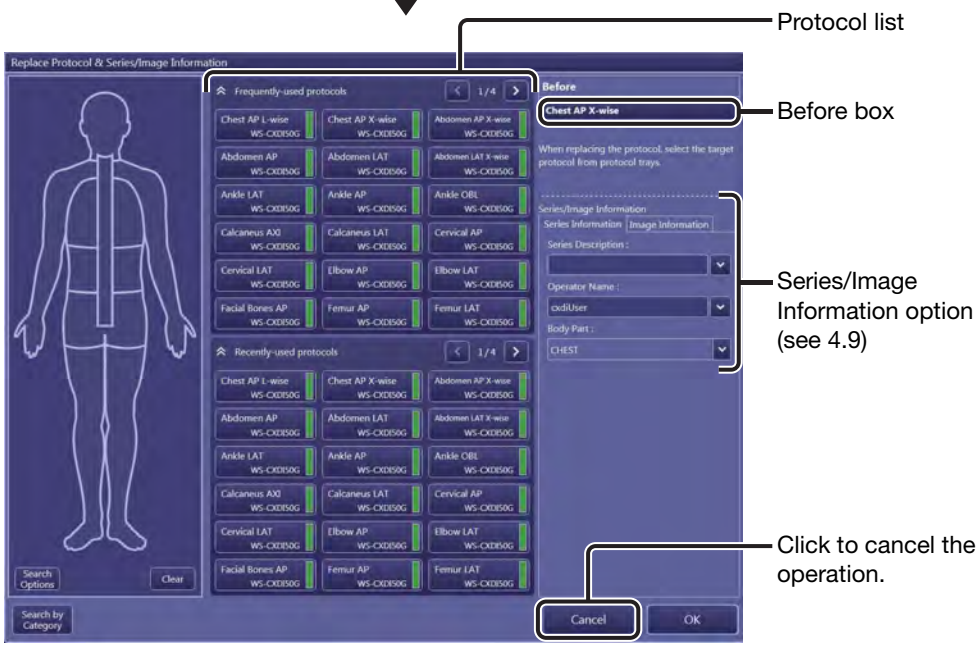
To reduce the integral dose applied to patients when mis-application of protocol has occurred, etc., an already captured image can be reprocessed using the parameters of another incomplete protocol with the same workspace as that used for the target image protocol.

1 Show the Replace Protocol & Series/Image Information dialog box.

Click to highlight the complete protocol that includes the target image and click the protocol again. The selected protocol name appears in the Before box.



[EXAM > Examination] screen

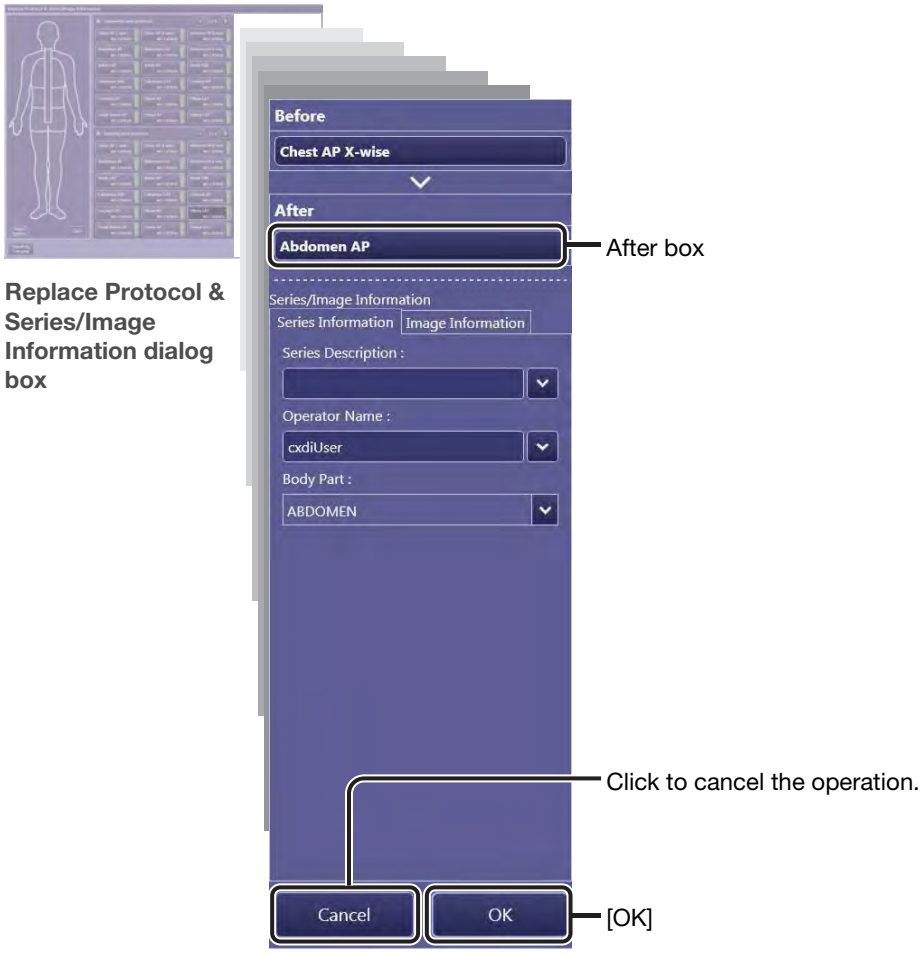


Replace Protocol & Series/Image Information dialog box

2 Select the replacement protocol used for reprocessing.

Click the replacement protocol in the protocol list. The selected protocol name appears in the After box.

NOTE: Only replaceable protocols (whose workspaces are identical to those of the original protocol) are displayed in the protocol list. For details on searching for a protocol, see 3.1.5 and 3.2.



Replace Protocol & Series/Image Information dialog box

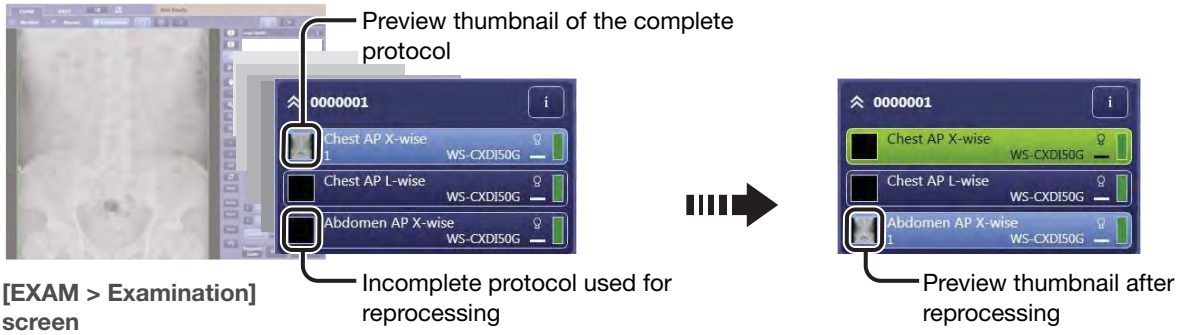
3 Set the replacement protocol.

Click [OK].

Continued

To perform reprocessing using incomplete protocols already listed in the study information pane

Drag the preview thumbnail of the original complete protocol and drop it on the target incomplete protocol, and then click [OK] in the warning dialog box that appears. The original complete protocol changes to an incomplete protocol.



[EXAM > Examination] screen

4.4 Recapturing images

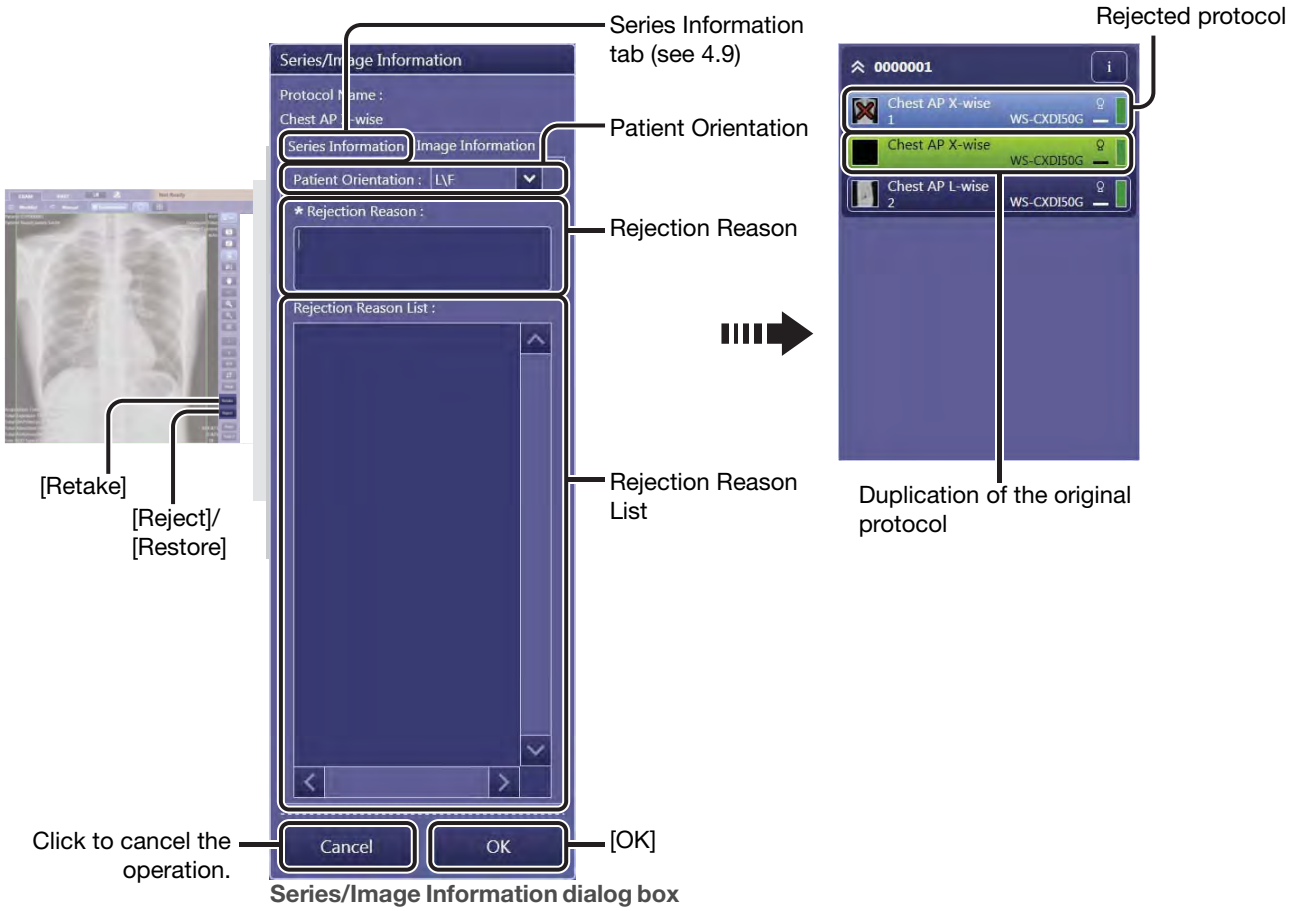
If a captured image is not acceptable, further examination using the same protocol is required. In such cases, follow the procedure below.

1 Select a failed protocol.

Click the target complete protocol in the study information pane.

2 Start duplication of the protocol.

Click [Retake] (Clicking the button changes [Reject] to [Restore]). The Series/Image Information dialog box appears.



Series/Image Information dialog box (Image Information tab)

3 Select a patient orientation and enter the reason for rejection.

Select an option in the Patient Orientation box and fill out the Rejection Reason box. The reason can also be selected from the Rejection Reason List.
(For details on Rejection Reason List management, refer to 2.4.2 in the Setup Guide.)

Continued

4 Set the duplicated protocol.

Click [OK]. The preview thumbnail of the selected protocol is crossed out and a duplication of the original protocol appears as an incomplete protocol.

To restore the original image

Click [Restore]. The original failed protocol resumes and the duplicated protocol is deleted.

NOTE: After the image of the rejected original protocol is reprocessed using another protocol (see 4.3), the duplicated protocol remains even if the original image is restored.

NOTE: After the duplicated protocol is replaced with another protocol (see 4.2), the duplicated protocol remains even if the original image is restored.

5 Conduct an examination using the duplicated protocol.

See 4.1 for details on operation.

4.5 Rejecting images

Depending on the Software setup, the images of complete protocols are generally transferred to PACS, printers and other destinations for diagnosis and other purposes when [End Exam] is clicked. The transfer feature can be disabled for unnecessary images resulting from failed exposure and other reasons.

1 Select a failed image.

Click the target complete protocol in the study information pane.

2 Reject the image.

Click [Reject] (Clicking the button changes [Reject] to [Restore]. See the figure in step 2 under 4.4.). The selected preview thumbnail is crossed out.

To restore the rejected images

Click the target complete protocol to restore, and then click [Restore].

4.6 Suspending an examination

If necessary, an examination that includes incomplete protocols can be suspended. The incomplete protocols will remain in that examination and can be restarted later. A suspended examination, even if it was abnormally terminated, can be restarted later.

1 Suspend an examination currently being conducted.

Click [Suspend Exam].

Listing functionality for unexpectedly terminated examinations

Unexpectedly terminated examinations are listed in the [EXAM > Worklist] or [EXAM > Pending List] screen with Pending indications in the Study Status column.

NOTE: Examinations listed in red indicate that they were abnormally terminated during processes. Indications and operations for the listed items are identical with those for examinations that are suspended by clicking [Suspend Exam].

To rebind patient information with that of another study order

Proceed to “4.7 Rebinding other study information with that of the suspended study order.”

NOTE: After rebinding, incomplete protocols in the study order will be deleted.

NOTE: Once images are transferred to PACS by clicking [Send to Storage], the corresponding images stored in the image-capture computer cannot be modified or post-processed. However, it will be enabled by patient information rebinding.

To restart the suspended study order

Select the suspended study order in the [EXAM > Worklist] or [EXAM > Pending List] screen, and then click [Start Exam].

4.7 Rebinding other study information with that of the suspended study order

When an examination was started for a different patient by mistake or another reasons, suspend the study order (see 4.6), rebind the correct study information with the suspended study order as explained in the following procedures, and start the examination again.

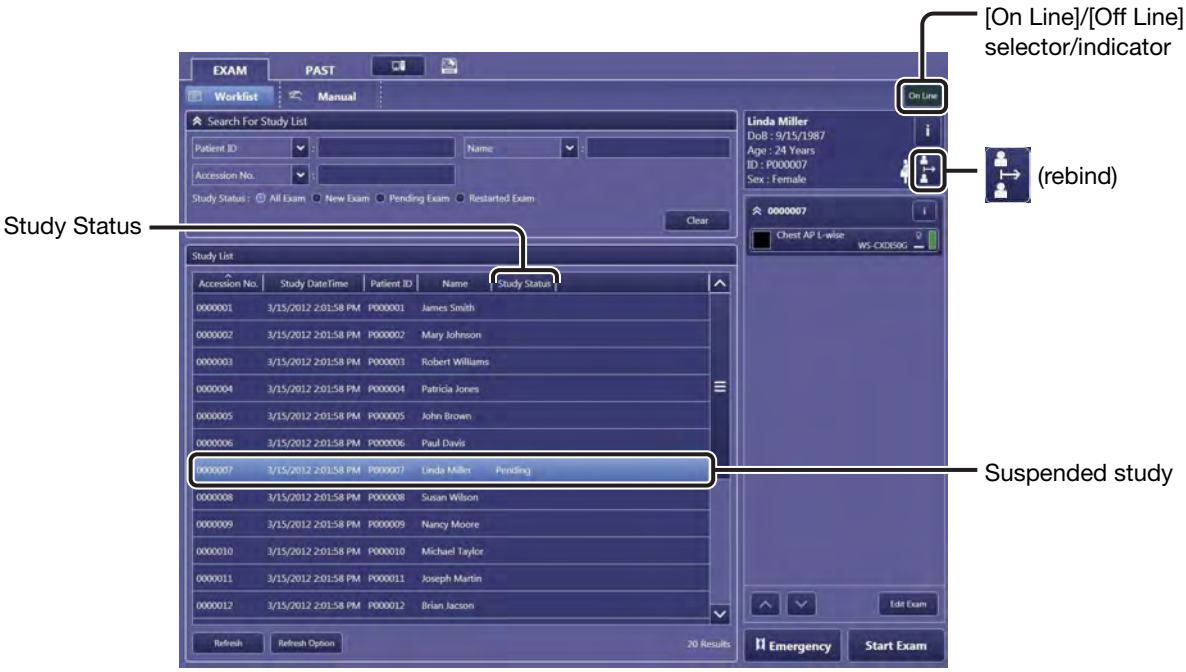
NOTE: Only study information included in a study order, which were listed in the [EXAM > Worklist] screen, can be added/moved to a suspended study order.

dose not appear for a study order which are manually created.

1 Select a suspended study order in the [EXAM > Worklist] screen.

Click to highlight a study order for which Pending is displayed in the Study Status column. Patient and study information of the selected study order appears in the study information pane.

NOTE: If two or more study orders are selected using the multi-selection feature, click unwanted study orders to clear them and leave only one target study order highlighted.



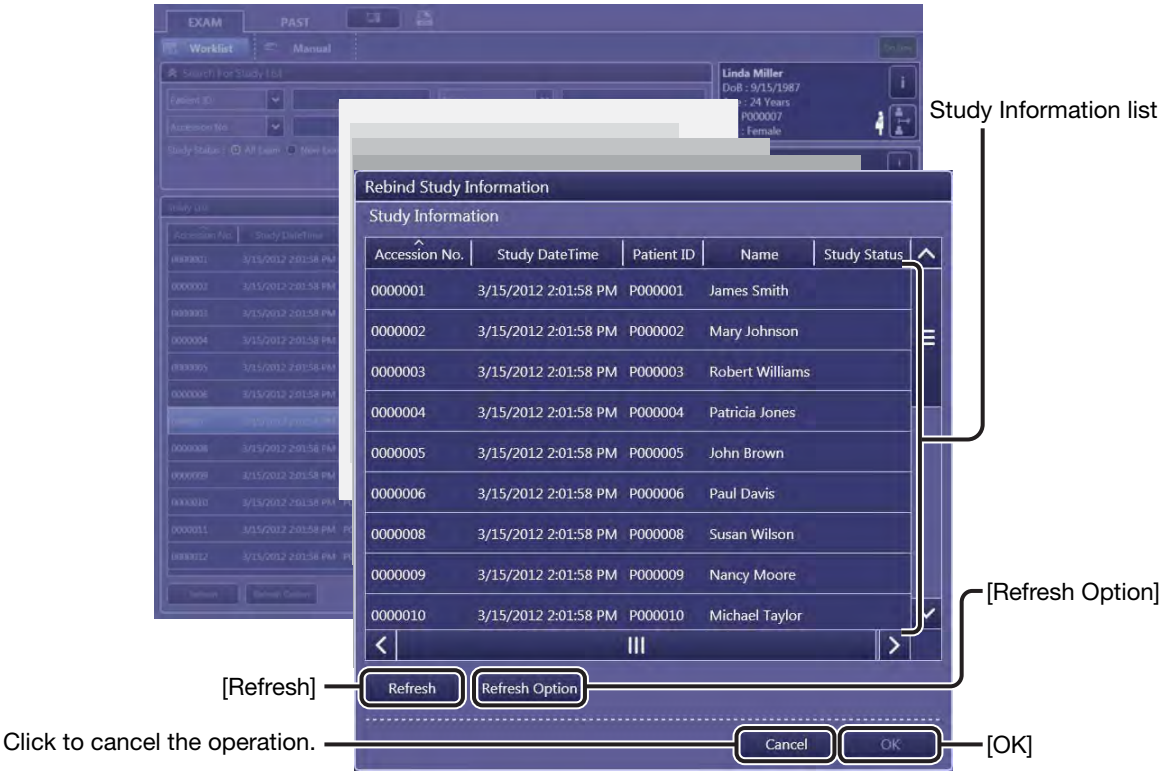
[EXAM > Worklist] screen

2 Show the Rebind Study Information dialog box.

Click .

NOTE: In offline mode, is disabled. In such cases, click [Off Line] to enable online mode.

NOTE: If the Controller is disconnected from the MWL server, is disabled. In such cases, enable connection in the [Connection > MWL] tab (refer to 2.6.3 in the Setup Guide).



Rebind Study Information dialog box

3 Select the target study order to be rebound.

Select a study order in the Study Information list.

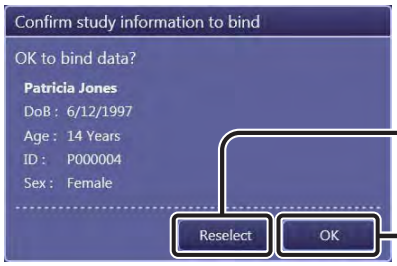
To refresh or narrow down the study information

Click [Refresh]. If necessary, change the narrowing conditions using [Refresh Option] in advance. For details on operation, see step 1 in 3.1.1.

Continued

4 Bind the study information with the suspended study order.

Click [OK] and then click [OK] in the Confirm study information to bind dialog box that appears.

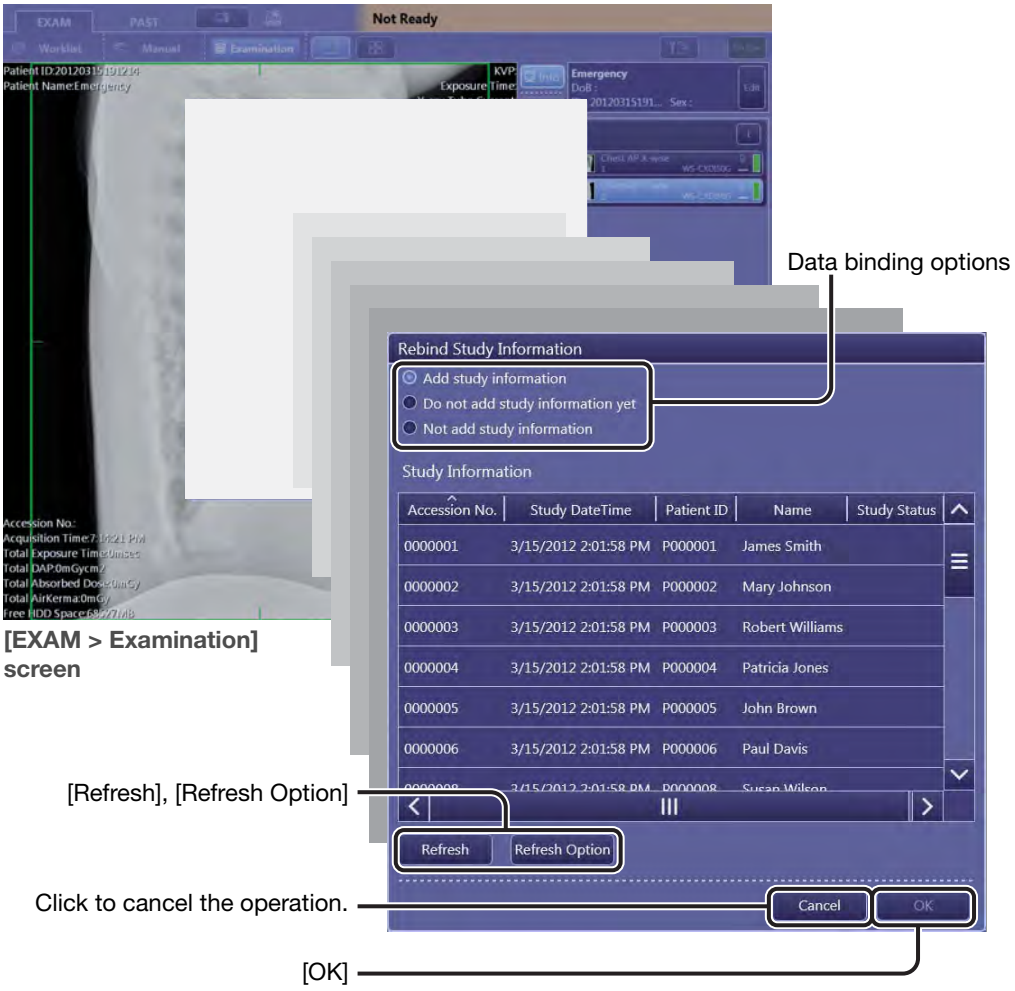


To conduct examinations using the rebound study information

Proceed to step 1 in 4.1, 4.2, or 4.3.

4.8 Binding study information with the images of an emergency study

See also 3.4 for details on emergency studies.
When an emergency study is ended with [End Exam], the following dialog box appears.



[EXAM > Examination] screen

NOTE: When the data exchange and updating services with the HIS/RIS database are not provided with the Software, [EXAM > Manual] screen appears instead of the dialog box above.

1 Select a data binding option.

Confirm the Add study information option is selected.

To bind the information later

Select the Do not add study information yet option, and then click [OK] to suspend the examination.
Later, restart the suspended emergency study (see 4.6 for details), click [End Exam] to show the above dialog box, and then select the Add study information option to bind the information.

Continued

Not to bind the information

Select the Not add study information option, and then click [OK].

> **CAUTION** **Be sure to confirm that the entered information (patient name, ID number, birth date, and sex) matches that of the patient. If the information is incorrect, the resulting patient mix-up and a misdiagnosis may cause harm to the patient.**

2 Select the target study information.

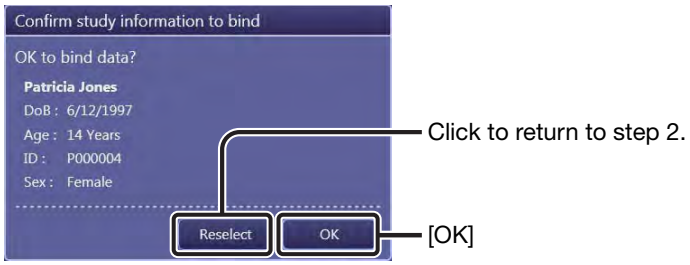
Click the item in the Study Information list.

To refresh or narrow down the information

Click [Refresh]. If necessary, change the narrowing conditions using [Refresh Option] in advance. For details on operation, see step 1 in 3.1.1.

3 Bind the study information with the image.

Click [OK], and then click [OK] in the Confirm study information to bind dialog box.



When the image arrangement screen appears

Proceed to “7.1.2 Arranging and printing images automatically.”

4.9 Adding information to a complete protocol

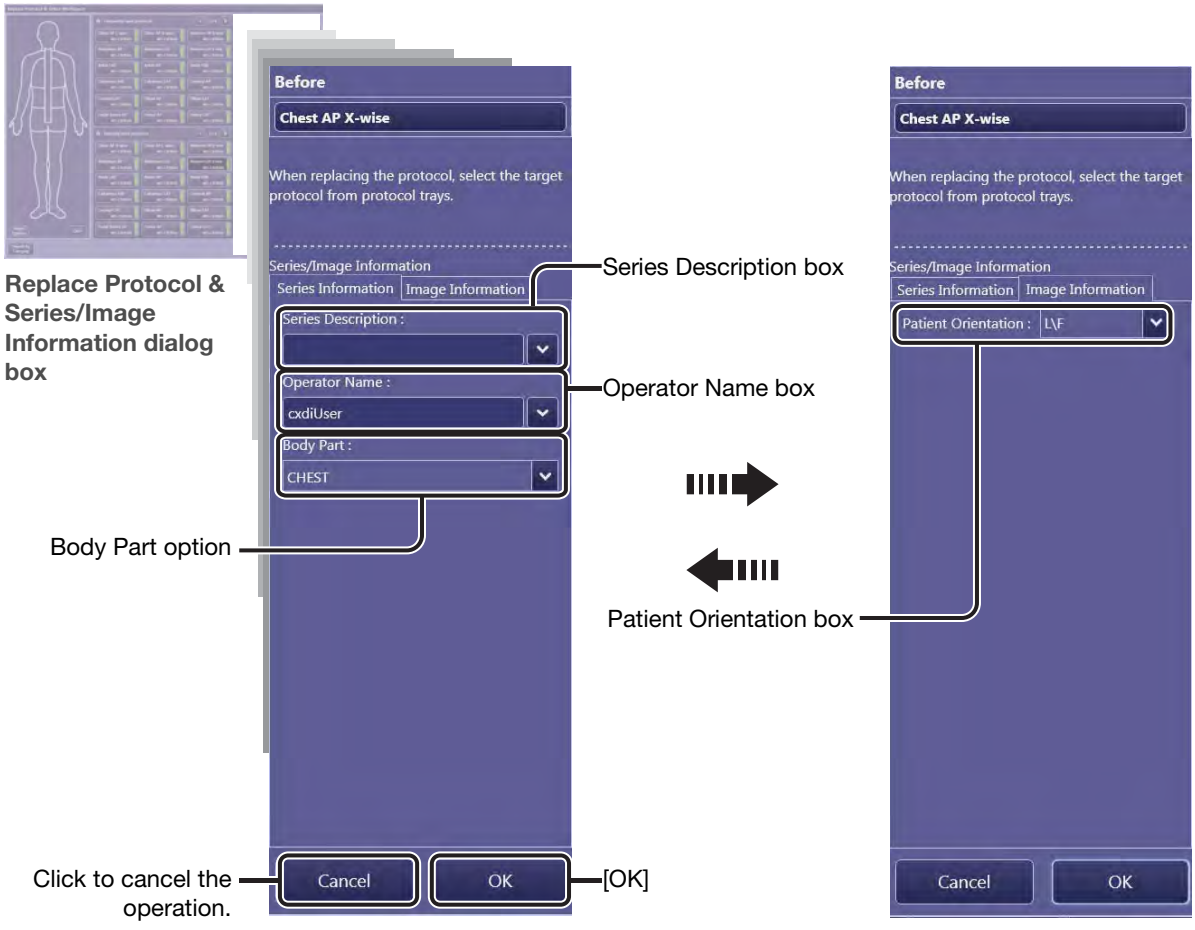
For further references in diagnosis, any description on a series of examination, Operator Name, and Body Part, as well as Patient Orientation, can be added to the complete protocol.

1 Show the Replace Protocol & Series/Image Information dialog box.

Click to highlight the complete protocol and click the protocol again in the study information pane on the [EXAM > Examination] screen. For details on operations, see step 1 in 4.3.

2 Enter descriptions in the Series Information tab.

Under the Series Information tab, enter information in the Series Description box. An option can be selected from the drop-down list as well as directly entering a text.



NOTE: Frequently used descriptions for some series information items can be preset. For details, refer to 2.4.2 in the Setup Guide.

Continued

3 Record an operator name.

Enter an operator name in the Operator Name box. An option can be selected from the drop-down list as well as directly entering a text.

4 Record a body part.

Select a body part from the Body Part drop-down list.

5 Record a patient orientation.

In the Image Information tab, select a patient orientation from the Patient Orientation drop-down list.

6 Set the information.

Click [OK].

5 Reviewing Images

5.1 Reviewing images on the [EXAM > Examination] screen

5.2 Reviewing images on the [PAST > View] screen

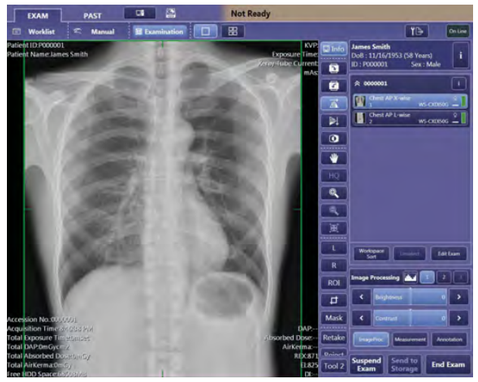
5.3 Deleting studies from the [PAST > Past List] screen

This chapter explains how to review images immediately after image capturing in the [EXAM > Examination] screen as well as later in the [PAST > View] screen.

Workflow

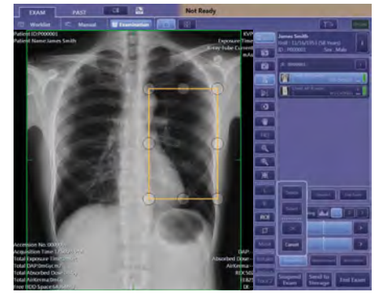
[EXAM > Examination] screen

Conducting Examinations (see chapter 4)



[EXAM > Examination] screen

5.1 Reviewing images on the [EXAM > Examination] screen



[EXAM > Examination] screen

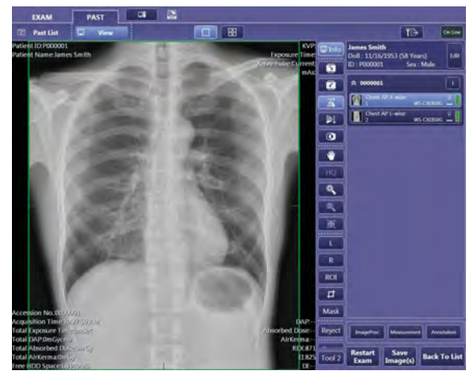
Post-Processing Images (see chapter 6)

Image arrangement screen

Arranging and printing images automatically (see 7.1.2)

[PAST > Past List] screen

5.3 Deleting studies from the [PAST > Past List] screen



[PAST > View] screen

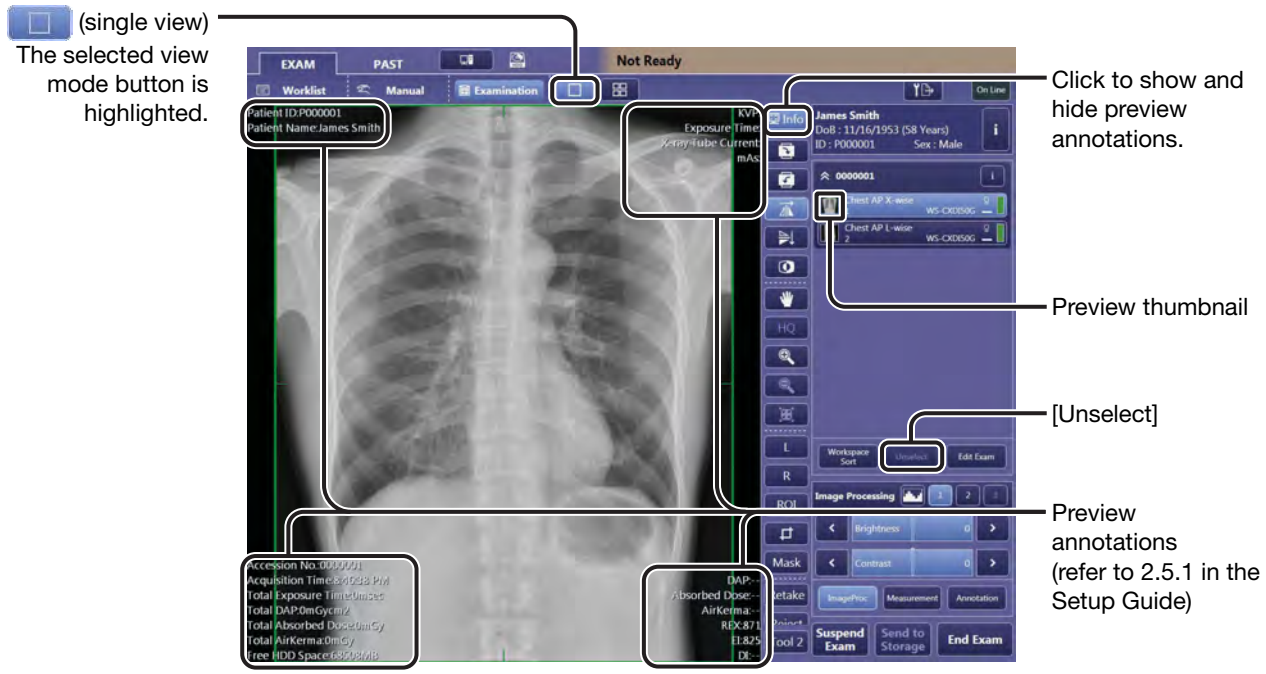
5.2 Reviewing images on the [PAST > View] screen

5.1 Reviewing images on the [EXAM > Examination] screen

NOTE: It is best to disengage the Ready status of the next available protocol during a prolonged review. Click [Unselect] in the study information pane so that **Not Ready** appears in the system status bar.

1 Select a target radiographic image thumbnail.

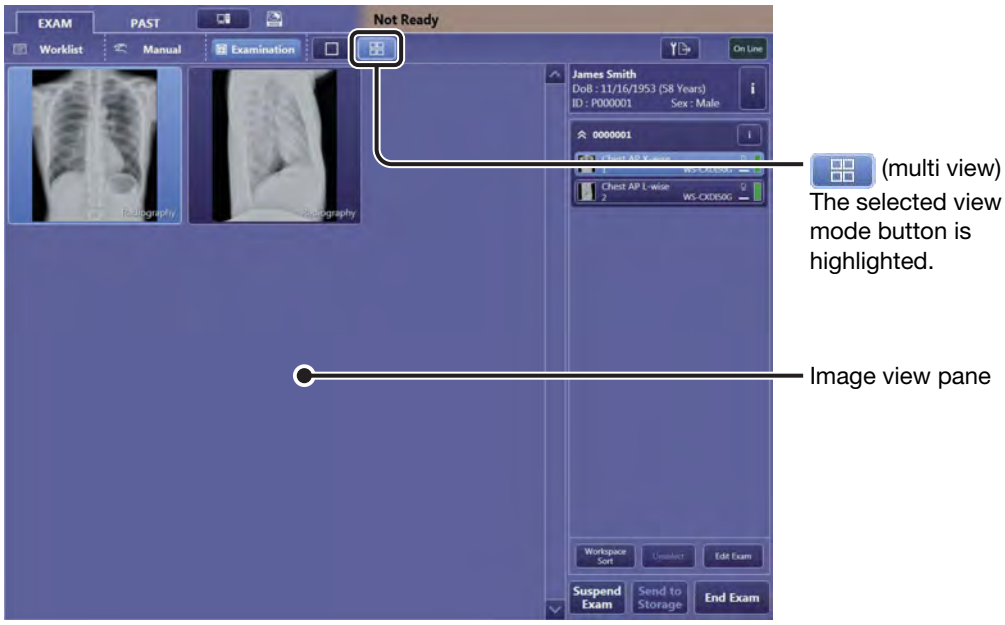
Click a preview thumbnail of a complete target protocol in the study information pane. The image appears in the image view pane in single view mode.



[EXAM > Examination] screen

To overview images in the current Exam (multi view mode)

Click . Up to nine images for the current Exam appear in the image view pane at a time. To resume single view mode, double-click an image in multi view mode or click .



To perform post-processing

Proceed to “6 Post-Processing Images.”

To restart examinations after review

Click an incomplete protocol and continue the examination (see step 2 in 4.1).

5.2 Reviewing images on the [PAST > View] screen

Images previously captured and saved in the directory in the image-capture computer, storage media, and other storage can be reviewed. In particular, studies saved in the image-capture computer can be restarted for additional examinations or copied for further image processing.

1 Show the [PAST > Past List] screen.

Click the [PAST] tab, and then click the [Past List] tab.

To sort the listed studies

Click a sort item in the column header. The current order is indicated by ^ (ascending) or v (descending) in the column. To switch between ascending and descending sort order, click the same item again.

To arrange the order of the column headers

Drag an item and drop it in the target position. Dragging the column border also adjusts the width of the column.

NOTE: The items displayed in the column head can be selected in the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

NOTE: The directory options are displayed when external storage is specified on the Disk Storage tab (refer to 2.6.5 in the Setup Guide). If the directory options do not appear, it means that all of the listed studies are stored in the image-capture computer.

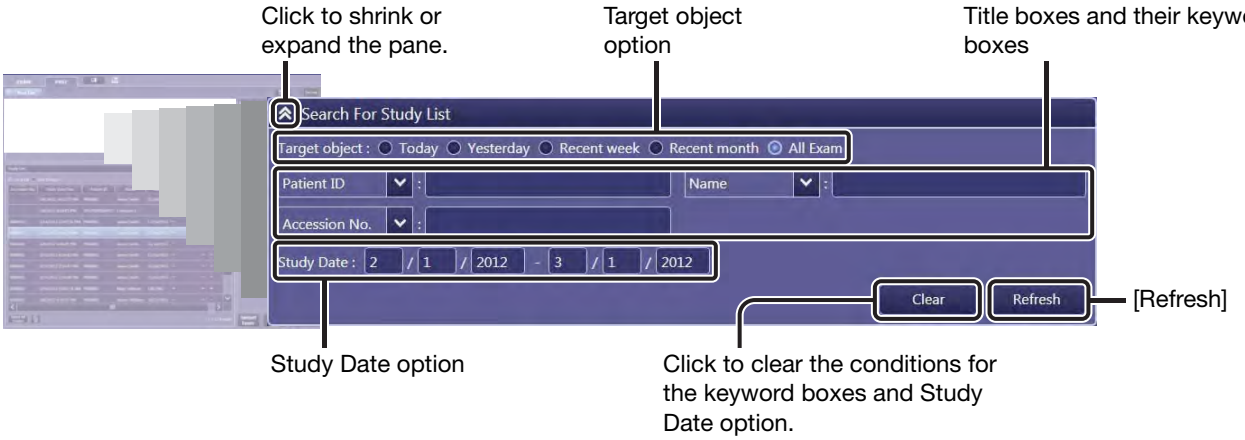
[PAST > Past List] screen
(example of the Local DB selected for the directory option)

Image transfer results can be confirmed

In the Study List, complete studies are listed with indications of image transfer results to the destination printer or data storage. The indications in the transfer result (Store Result/Print Result) column are as follows: (Done), (Sending), (Error), and (no setup). For details on image transfer, see 7.1.
The storage commitment results ((Committed), (Committing), (Commitment error), or (no setup)) can also be confirmed in the SC column in the same list. For details on the storage commitment, refer to 2.6.1 in the Setup Guide.

To narrow down the list items

Enter any narrowing conditions in the Search For Study List pane.


Click to shrink or expand the pane.
Target object option
Title boxes and their keyword boxes
Search For Study List
Target object : Today Yesterday Recent week Recent month All Exam
Patient ID
Name
Accession No.
Study Date : 2 / 1 / 2012 - 3 / 1 / 2012
Clear
Refresh
[Refresh]
Study Date option
Click to clear the conditions for the keyword boxes and Study Date option.

Target object: Select a period where the target examination was conducted, from among **Today**, **Yesterday**, **Recent week**, **Recent month**, and **All Exam**.

Three of the following information titles can be selected for the narrowing conditions: **Patient ID**, **Name**, **ACC#**, **Study Description**, **Protocol Name**, **Series Description**, **Body Part**, and **View Position**. Select an option in each title box, and then enter any keyword in its text box. Note that these three keywords are used as AND search conditions.

NOTE: Only when All Exam is selected for the Target object option during Local DB search (see 5.3), [Refresh] appears. In such cases, click [Refresh] to start search after entering necessary keywords in the text boxes.

NOTE: The information titles that can be selected for the narrowing conditions are those currently displayed in the column header. For details on the column header settings, refer to the Column Headers option under 2.4.1 in the Setup Guide.

Study Date: Specify both or either the start and end date of the target period. This option is enabled only when the Recent week, Recent month, or All Exam is selected for the Target Object option.

5.2.1 Reviewing images saved in the image-capture computer

Images stored in the image-capture computer can be reviewed.

1 Select the volume containing the target study.

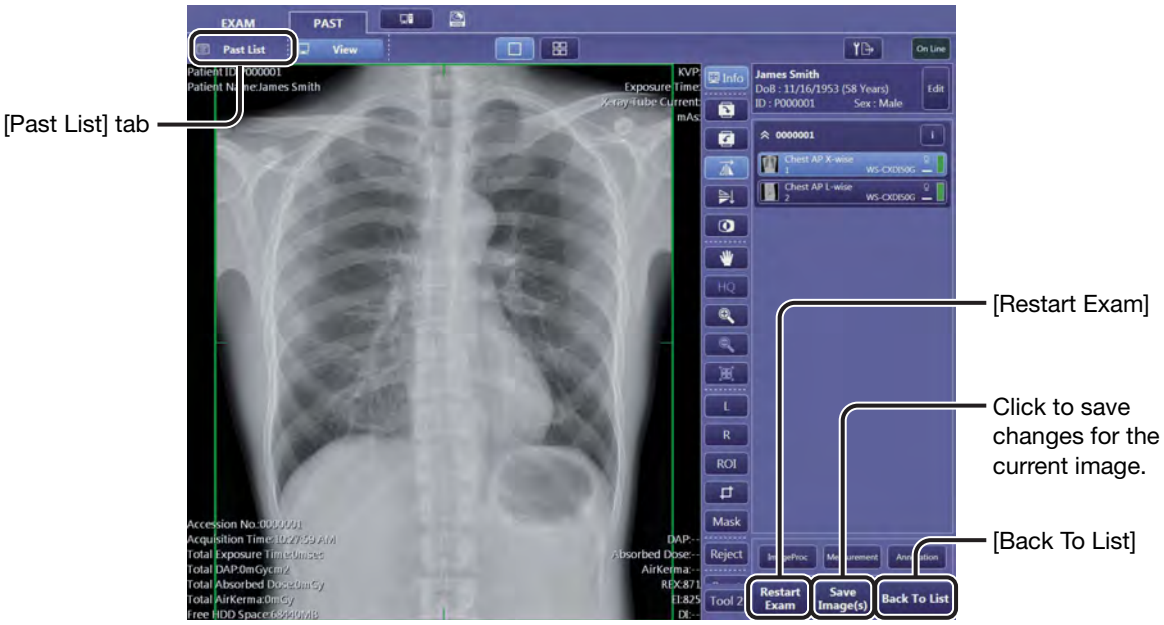
Select Local DB for the directory option.

2 Select the target study.

Click to highlight a study. The selected study is listed in the study information pane.

3 Show the image.

Click [Recall Exam]. The image appears in the image view pane in single view mode.



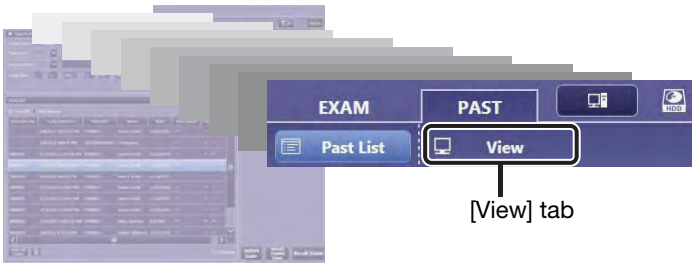
[PAST > Past List] screen

To perform post-processing

Proceed to “6 Post-Processing Images.”

To review other images

Click [Back To List] and then follow steps 2 and 3. The Study List can also be displayed by clicking [Past List] tab.



[PAST > Past List] screen
(when an image is displayed in the [PAST > View] screen)

NOTE: The image of a study listed in the [PAST > Past List] screen with indicated in the attribute icon column is being reviewed in the [PAST > View] screen (see NOTE in 5.2.3).

5.2.2 Conducting additional examinations using a complete study

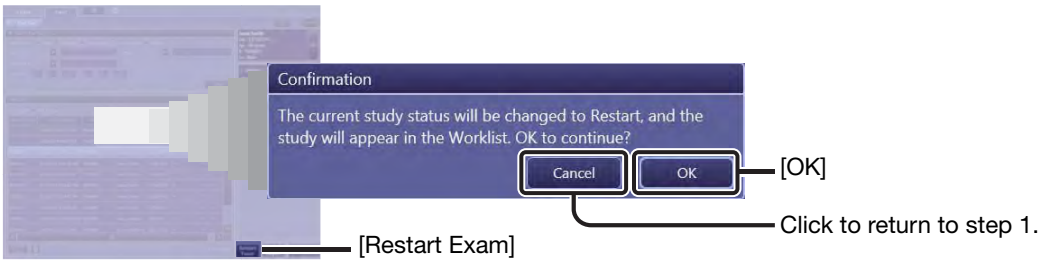
Using exclusively complete studies that are saved in the image-capture computer, users can restart studies without creating a new study order.

1 Select the target study.

See steps 1 and 2 in 5.2.1 for details on operation.

2 Move the study to the Study List in the [EXAM > Worklist] screen.

Click [Restart Exam] and click [OK] in the confirmation dialog box that appears. The study disappears from the Study List in the [PAST > Past List] screen.


Confirmation
The current study status will be changed to Restart, and the study will appear in the Worklist. OK to continue?
Cancel
OK
[OK]
Click to return to step 1.
[Restart Exam]

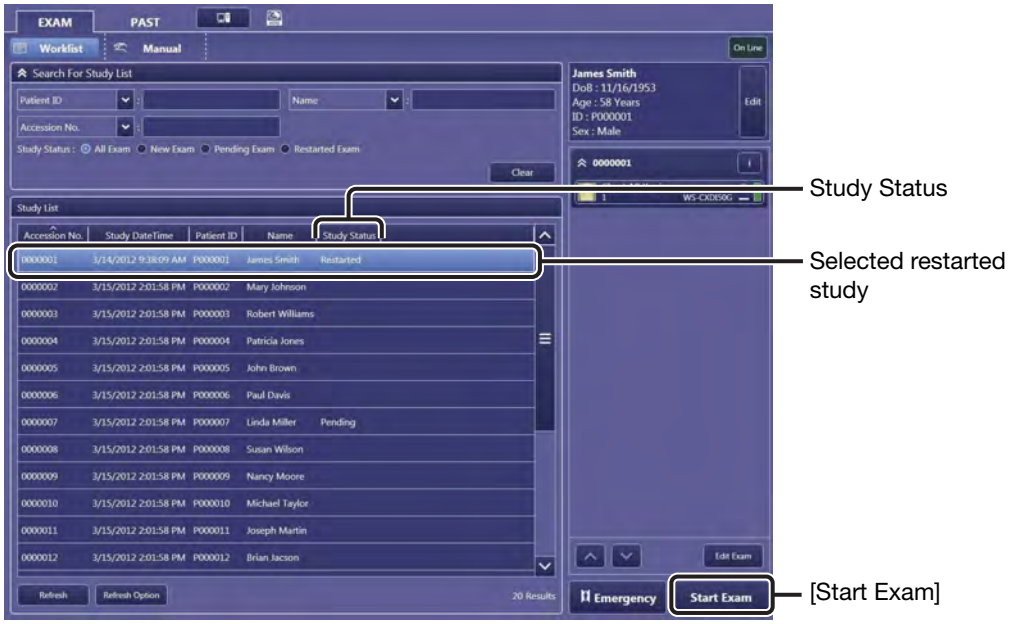
[PAST > Past List] screen

NOTE: [Restart Exam] is also available in the [PAST > View] screen.

Continued

3 Start examination.

In the [EXAM > Worklist] screen, select the restarted study with the Restarted indication in the Study Status column, add new protocols (see 3.1.5), and then click [Start Exam]. For details on conducting examinations, see chapter 4.



[EXAM > Worklist] screen

NOTE: Only the images captured with the newly added protocols can be transferred to destination storages and printers.

NOTE: Only panning (see 6.1.3) and zoom in/out (see 6.1.4) operations can be enabled for images that are carried over from the restarted study.

5.2.3 Creating images using different image processing parameters of a copied study

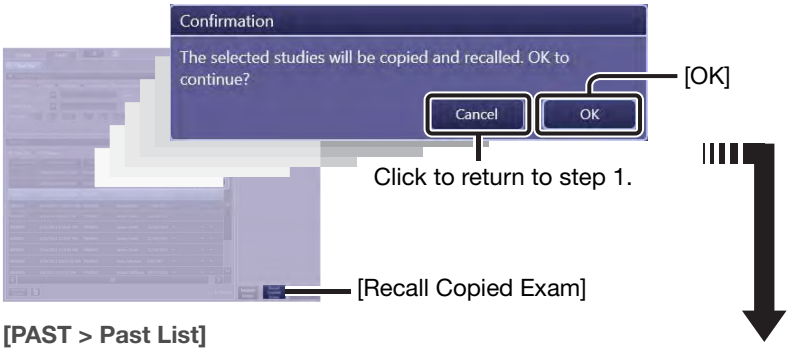
Using exclusively complete studies that are saved in the image-capture computer, users can post-process images included in those studies and can transfer the images to destination storages and printers. The copied studies can also be restarted.

1 Select the target study.

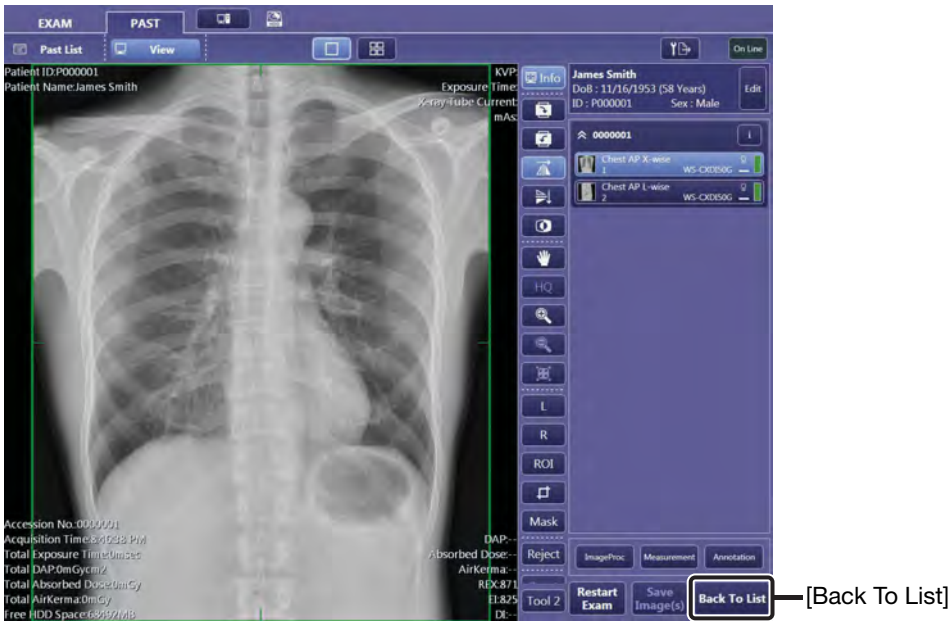
See steps 1 and 2 in 5.2.1 for details on operation.

2 Review the copied study.

Click [Recall Copied Exam] and click [OK] in the confirmation dialog box that appears. The copied study appears in the [PAST > View] screen.



[PAST > Past List] screen



[PAST > View] screen (copied study)

To perform post-processing

Proceed to “6 Post-Processing Images.”

To transfer the post-processed image

Proceed to “7.1 Printing and transferring images.”

To restart the copied study

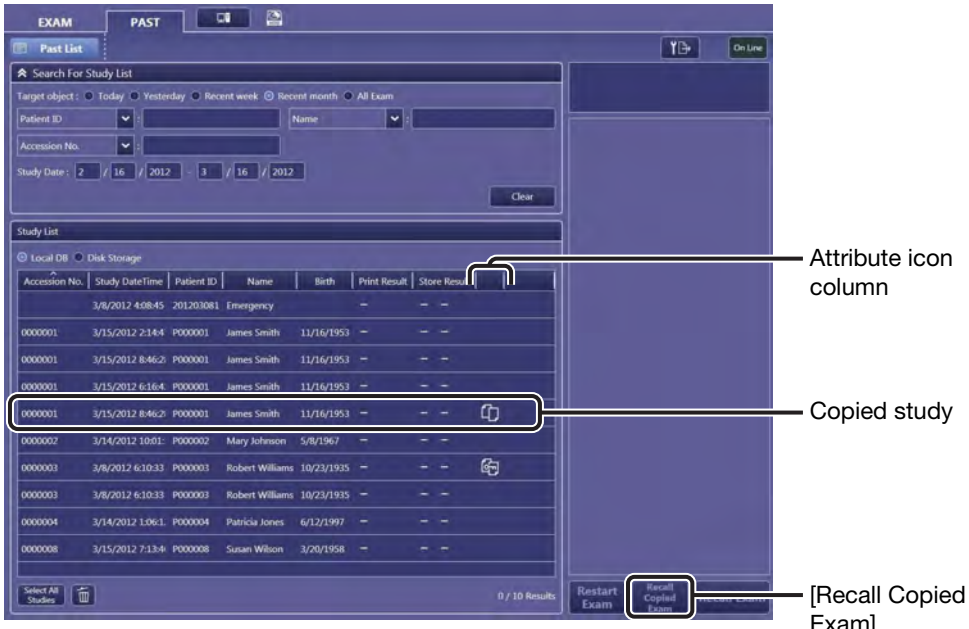
For details on operation, see steps 2 and 3 in 5.2.2.

To review other images

Click [Back To List] or the [Past List] tab, and then follow steps 2 and 3 in 5.2.1.

Continued

NOTE: When the copied study is listed in the [PAST > Past List] screen, is displayed in its attribute icon column. Furthermore, when the copied study is protected (see 3.1.3), changes to .


EXAM
PAST
Past List
On Line
Search For Study List
Target object : Today Yesterday Recent week Recent month All Exam
Patient ID
Name
Accession No.
Study Date : 2 / 16 / 2012 - 3 / 16 / 2012
Clear
Study List
Local DB Disk Storage
Accession No. Study DateTime Patient ID Name Birth Print Result Store Result
3/8/2012 4:08:45 201203081 Emergency
0000001 3/15/2012 2:14:4 P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:2 P000001 James Smith 11/16/1953
0000001 3/15/2012 6:16:4 P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:2 P000001 James Smith 11/16/1953
0000002 3/14/2012 10:01: P000002 Mary Johnson 5/8/1967
0000003 3/8/2012 6:10:33 P000003 Robert Williams 10/23/1935
0000003 3/8/2012 6:10:33 P000003 Robert Williams 10/23/1935
0000004 3/14/2012 1:06:1 P000004 Patricia Jones 6/12/1997
0000008 3/15/2012 7:13:4 P000008 Susan Wilson 3/20/1958
Select All Studies
0 / 10 Results
Restart Exam
Recall Copied Exam
Attribute icon column
Copied study
[Recall Copied Exam]

[PAST > Past List] screen

5.2.4 Reviewing images saved in storage media

Images saved in storage media such as an external HDD can be reviewed.

NOTE: Except for reviewing, operations such as post-processing, copying studies, restarting studies, and zooming in/out are not enabled for images saved in storage media.

1 Select the volume containing the target study from the [PAST > Past List] screen.

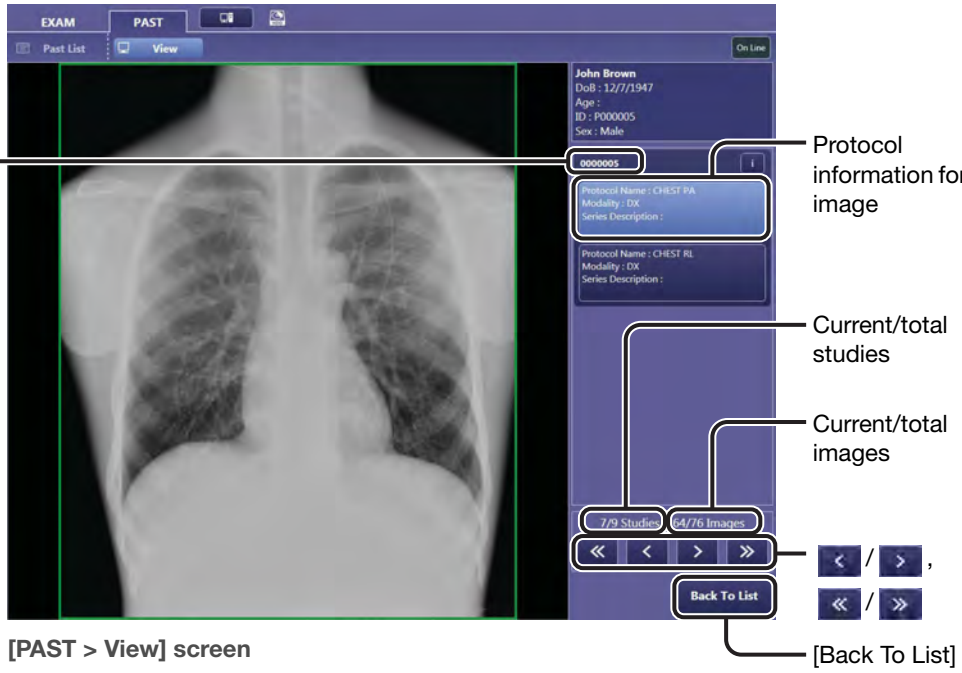
Select Disk Storage for the directory option.

2 Select the target study.

Click a study to highlight it.

3 Review the study.

Click [Recall Copied Exam]. The selected study appears in the [PAST > View] screen.



[PAST > View] screen

NOTE: Age in the patient information pane remains blank during review.

To navigate the images in the directory

Click < / > to show previous/next image.
Click « / » to show previous/next study.

To review other images

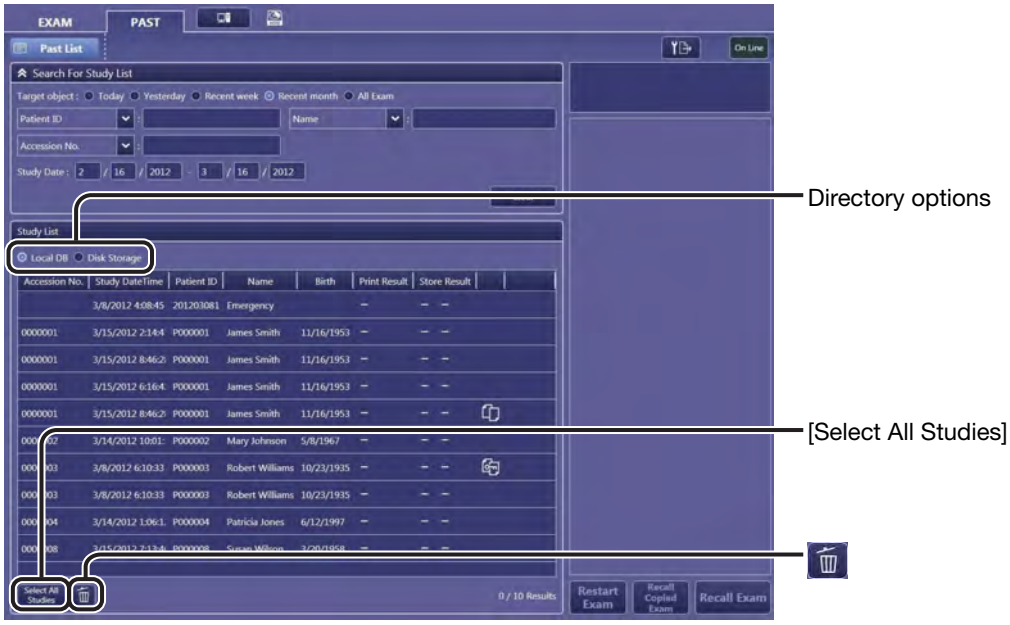
Click [Back To List] or the [Past List] tab, and then follow steps 2 and 3.

5.3 Deleting studies from the [PAST > Past List] screen

This Software is configured to automatically delete past study data that is stored in the image-capture computer in chronological order from old to recent. To prevent useful reference study data from being deleted, check the HDD free space icon (see 3.1.1) and delete unnecessary studies before the available HDD space decreases too much.

1 Switch the Study List for the target directory.

Click one of the target directory options.

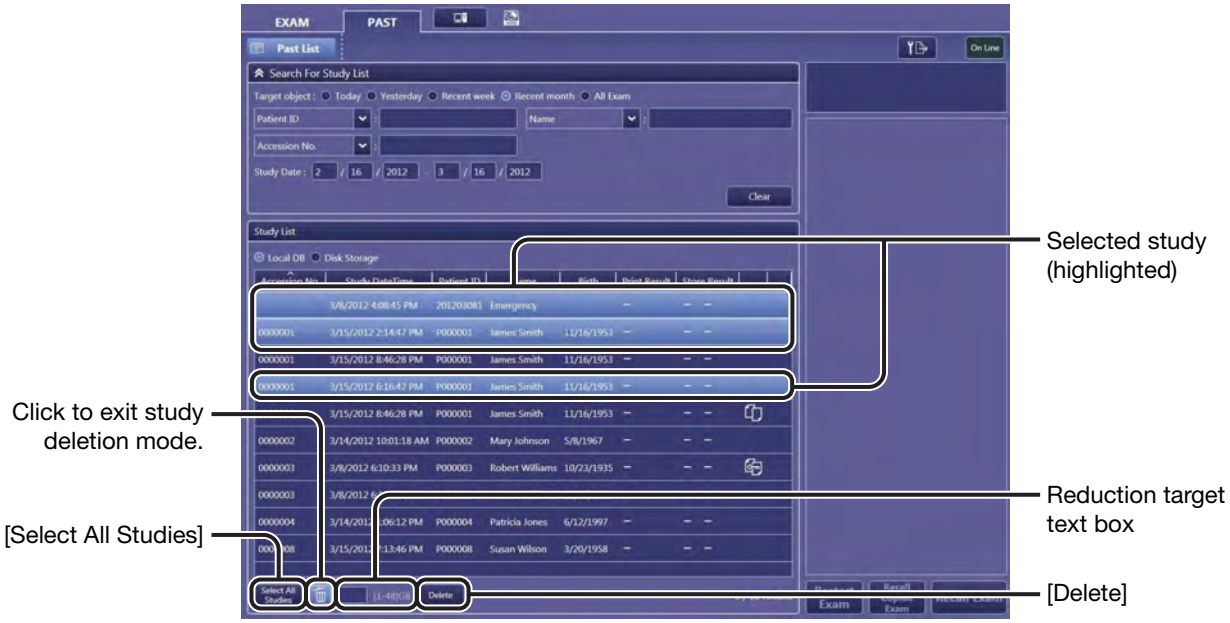

EXAM
PAST
Past List
On Line
Search For Study List
Target object : Today Yesterday Recent week Recent month All Exam
Patient ID
Name
Accession No.
Study Date : 2 / 16 / 2012 - 3 / 16 / 2012
Study List
Local DB Disk Storage
Accession No. Study DateTime Patient ID Name Birth Print Result Store Result
3/8/2012 4:08:45 201203081 Emergency
0000001 3/15/2012 2:14:4 P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:2 P000001 James Smith 11/16/1953
0000001 3/15/2012 6:16:4 P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:2 P000001 James Smith 11/16/1953
3/14/2012 10:01: P000002 Mary Johnson 5/8/1967
3/8/2012 6:10:33 P000003 Robert Williams 10/23/1935
3/8/2012 6:10:33 P000003 Robert Williams 10/23/1935
3/14/2012 1:06:1 P000004 Patricia Jones 6/12/1997
Select All Studies
0 / 10 Results
Restart Exam
Recall Copied Exam
Recall Exam
Directory options
[Select All Studies]

[PAST > Past List] screen

NOTE: When the Disk Storage option is selected, the Software automatically enters study deletion mode. Therefore, users do not need to click in step 2.

2 Select the target studies.

Click to enter study deletion mode, and then select the target studies in the list.



[PAST > Past List] screen (study deletion mode)

NOTE: Studies with or displayed in the attribute icon column (no title) cannot be deleted as the Protect Image option is selected. For details on the Protect Image option, see step 2 in 3.1.3. Also, refer to 2.4.1 in the Setup Guide for the Column Headers setting.

To select multiple studies (keyboard and mouse operation)

Click one study and then shift-click the second one. The two clicked studies and all studies between them are selected. Control-click enables another multiple selection. All the control-clicked studies are selected.

To select multiple studies (touch-screen display operation)

Touch [Enable additional selection] and then touch the target studies one by one. All touched studies are selected.

To select all studies at the same time

Click [Select All Studies].

To clear the selection

Click a highlighted study to clear other selections.
Control-click a highlighted study to clear the selection.
Click [Select All Studies] twice to clear all selections.

Continued

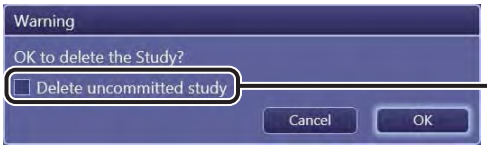
To specify the target data volume to be deleted (for the Local DB option only)

Enter a value in the reduction target text box. If the amount of deleted data does not reach the target amount, an alert will appear.

NOTE: The reduction target text box and [Delete] are available only when the user who has the Security Administrations privilege logs in to the Software. For details, consult your service engineer.

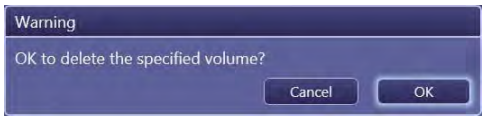
3 Delete the target studies.

Click [Delete], and then click [OK] in the Warning dialog box that appears.



Select to delete studies during transfer.

Warning dialog box when the target capacity is not specified



Warning dialog box when the target capacity is specified

6 Post-Processing Images

6.1 Using the toolbar (Basic processing)

6.2 Using the Image Processing panel (Level 1)

6.3 Using the Measurement panel

6.4 Using the Annotation panel

This chapter explains how to modify captured images for more effective image interpretation during diagnosis. Furthermore, measurement results (distance and angle), including values, units, and line segments, can be superimposed over images in the image view pane.

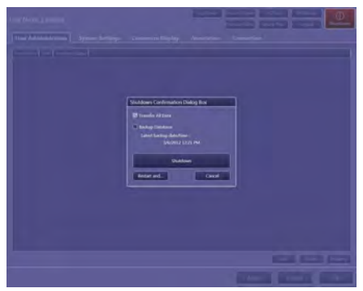
Workflow

[EXAM > Examination] screen

Conducting Examinations (see chapter 4)
Reviewing Images (see chapter 5)

[PAST > View] screen

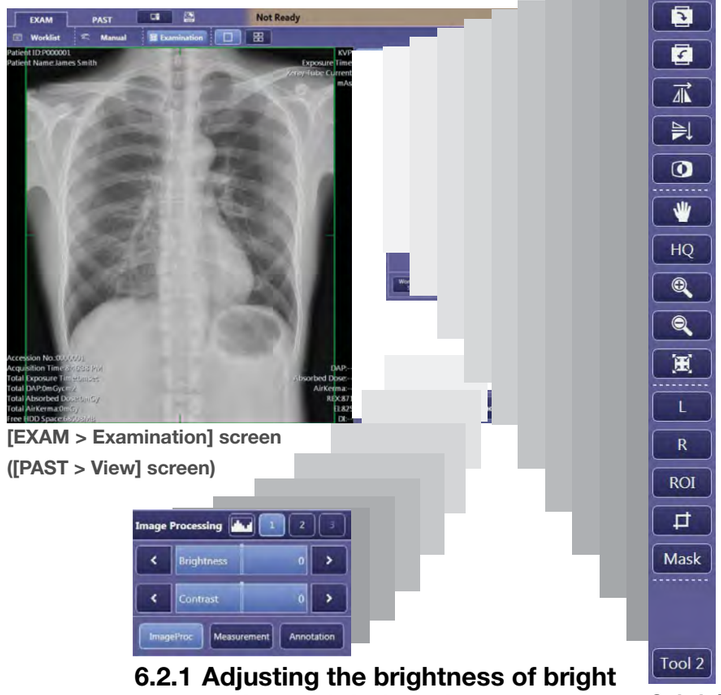
Reviewing images on the [PAST > View] screen (see 5.2)



Shutting down the Software (see 2.2)

Image arrangement screen

Arranging and printing images automatically (see 7.1.2)



[EXAM > Examination] screen
([PAST > View] screen)

6.2.1 Adjusting the brightness of bright region and dark region

6.2.2 Adjusting the overall brightness and contrast

6.3.1 Measuring the distance between two specific points

6.3.2 Measuring the angle of a specific part

6.3.3 Measuring the Cobb angle

6.3.4 Measuring the height difference

6.4.1 Creating/editing custom annotations

6.1.1 Rotating/flipping images

6.1.2 Inverting a negative image to a positive image and vice versa

6.1.3 Panning images

6.1.4 Zooming images

6.1.5 Embedding laterality markers in images

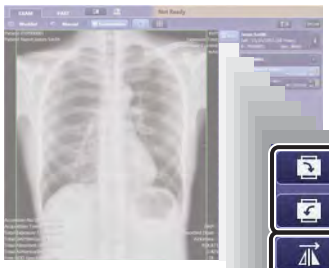
6.1.6 Adjusting the overall brightness on the ROI basis

6.1.7 Cropping images

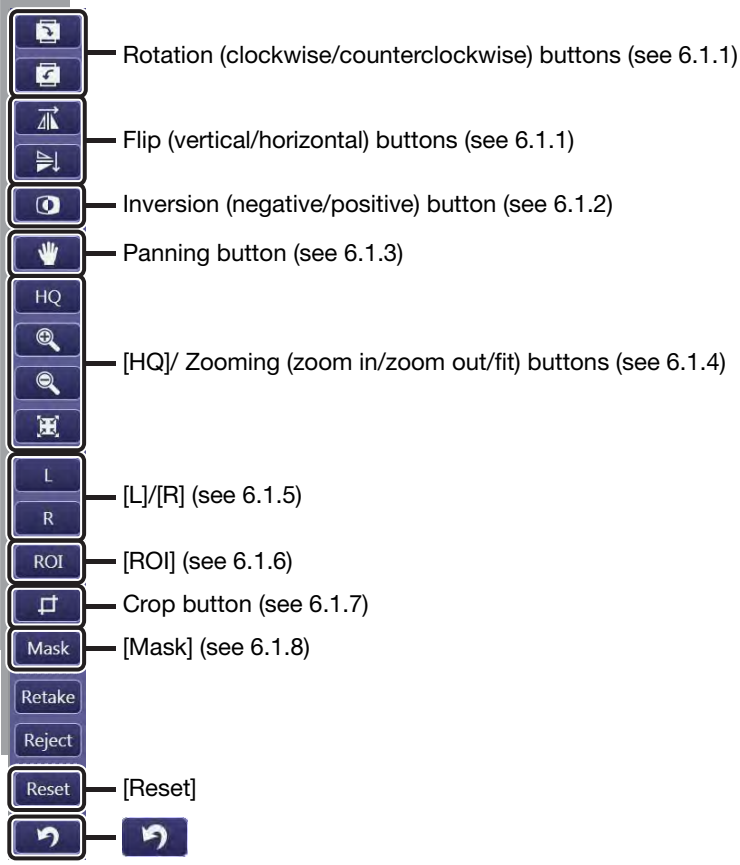
6.1.8 Masking the peripheral area

6.1 Using the toolbar (Basic processing)

When reviewing images, the following buttons are available.



[EXAM > Examination] screen



Toolbar

To undo the previous operation

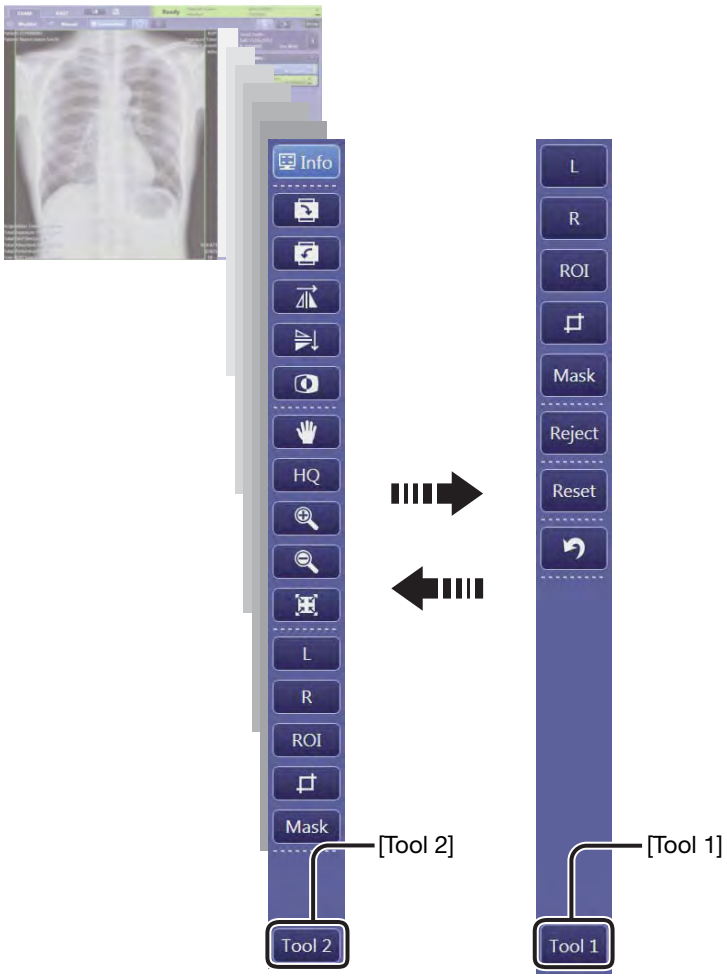
Click . Note that some operations, such as panning, cannot be undone.

To restore the default processing settings of the current protocol

Click [Reset]. All modifications made for the current image are canceled.

To switch the toolbar

If [Tool 1] or [Tool 2] appears at the bottom of the toolbar, two types of toolbar have already been configured.
Click [Tool 1] or [Tool 2].



NOTE: Refer to 2.4.3 in the Setup Guide for details on toolbar customization.

6.1.1 Rotating/flipping images

Images can be rotated and flipped.

1 **Rotate or flip the image.**

: Click to rotate the image clockwise 90 degrees.

: Click to rotate the image counterclockwise 90 degrees.

: Click to flip the image vertically.

: Click to flip the image horizontally.

NOTE: Generally, the preview image before clicking or is a view from the X-ray generator. The image will be reversed after clicking one of these buttons.

6.1.2 Inverting a negative image to a positive image and vice versa

Images can be inverted between negative and positive.

1 **Invert negative to positive and vice versa.**

Click . To restore the original appearance, click it again.

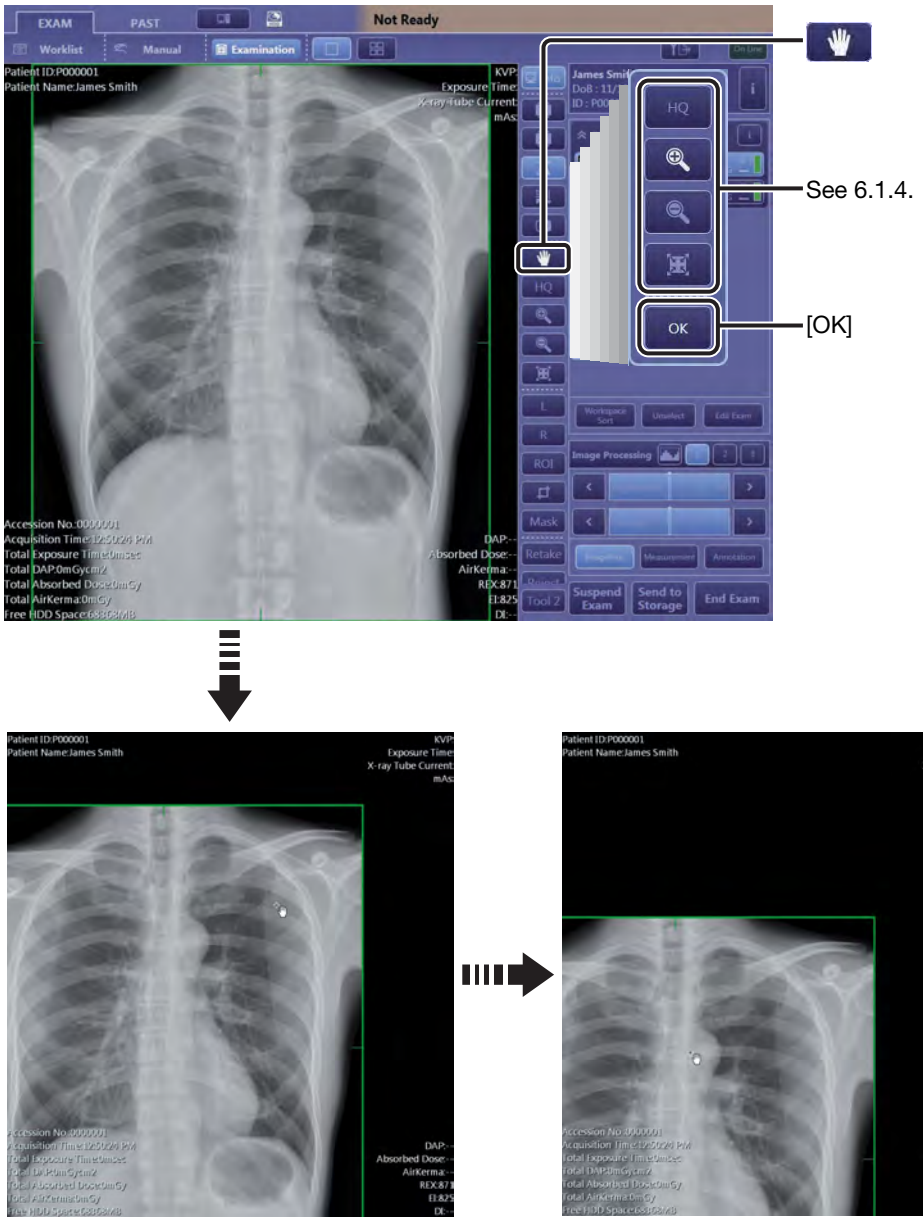
6.1.3 Panning images

To more easily view certain parts of an image, click inside a cropped or magnified image and drag it to change the viewing boundaries.

NOTE: The panning operation does not affect the images that are transferred to a storage server, printer, or other destination directories.

1 Pan the image.

Click , and then drag the image to any position, keeping the center of the image within the boundaries of the image view pane.



To finish panning

Click [OK].

6.1.4 Zooming images

Images can be magnified for review in detail and then reduced to the original size (at the same time, the original position will be resumed). Pixel-to-pixel and high-resolution display modes are also available.

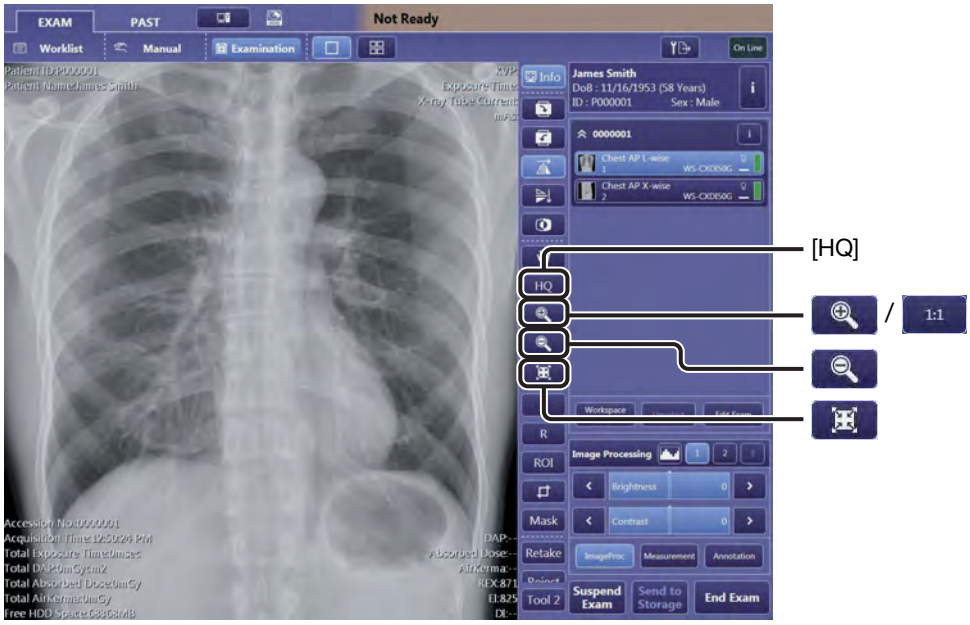
NOTE: The change in magnification does not affect the size of the images that are transferred to a storage server, printer, or other destination directories.

1 Zoom in the image.

Click repeatedly. The image is enlarged from the center of the cropped image in four steps.

To enable pixel-to-pixel display mode

Click repeatedly until changes to 1:1, and then click 1:1.



To review images in high-resolution mode

Click [HQ]. Fine textures will be clearly displayed at the same magnification when [HQ] is clicked.

NOTE: Usually, the resolution of a reduced image is automatically adjusted depending on the image magnification. In such cases, [HQ] enables original resolution display at the same magnification. On the other hand, magnifies the image, keeping the automatically adjusted resolution.

To zoom out of the image

Click repeatedly. The enlarged image display is reduced until the zooming is reset.

To resume default magnification and display position

Click .

6.1.5 Embedding laterality markers in images

In general, laterality markers can automatically be embedded in an image during an examination by presetting protocols. This section explains manual embedding procedures after an examination.
Though these markers generally indicate DICOM laterality, they can also be used to simply indicate left and right of the image (refer to “Protocol Settings” in 3.4.1 in the Setup Guide). Annotations other than “L” and “R” can also be embedded (see 6.4).

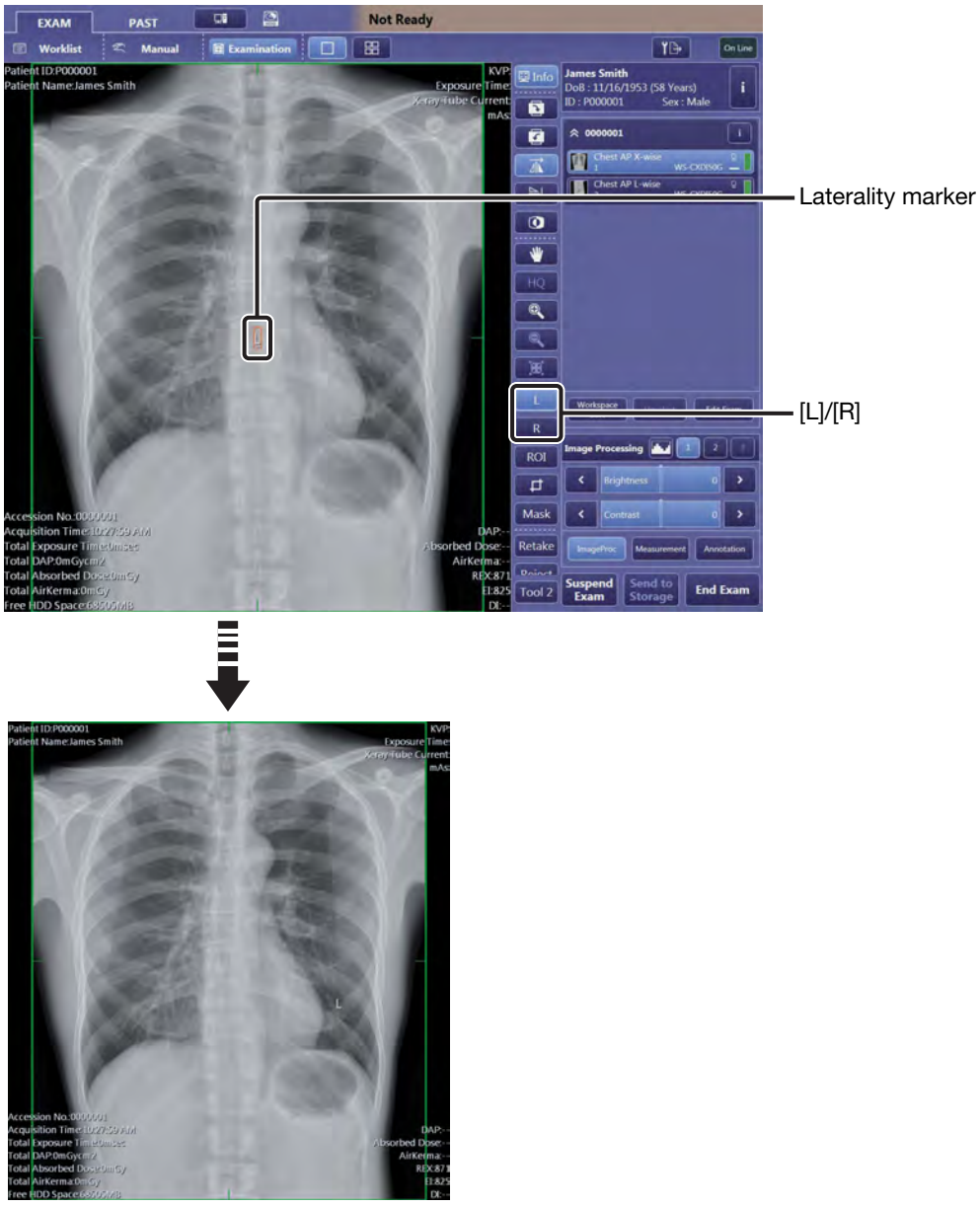
1 Embed a laterality marker in an image.

Click [L] or [R]. The “L” or “R” mark appears at the preset position. (For details on the position settings, refer to “Protocol Settings” under 3.4.1 in the Setup Guide.)

To change the position of an embedded laterality marker

Click a laterality marker to show its boundaries in orange, and then click a destination point on the image view pane. The marker appears at the click point.

Continued



6.1.6 Adjusting the overall brightness on the ROI basis

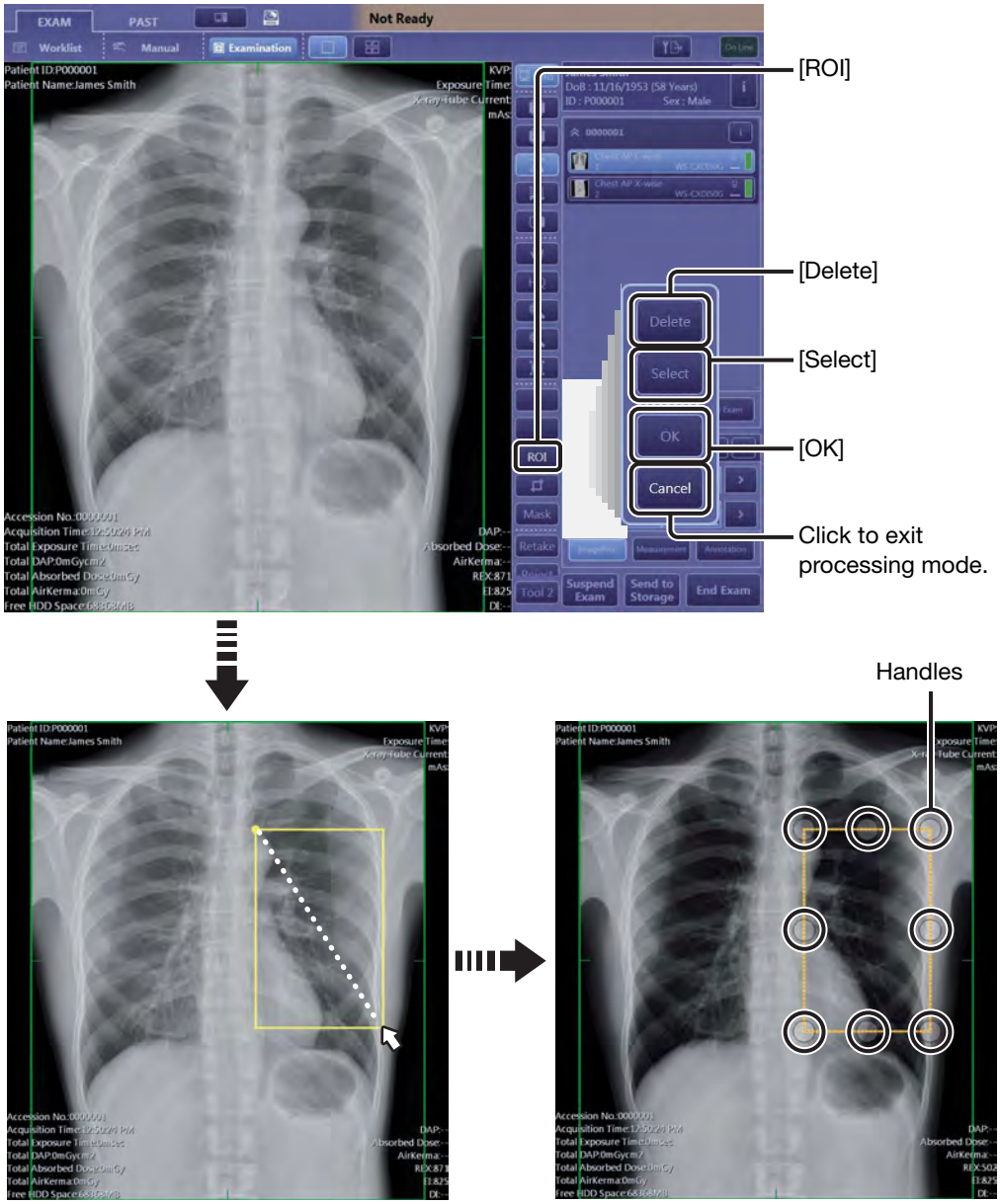
Use this function if details in dark or bright regions are missing in an image even though brightness was automatically adjusted by the Software. The brightness of the overall image can be adjusted based on the mean brightness of an ROI.

1 Enable overall brightness adjustment mode.

Click [ROI].

2 Specify an area to serve as the adjustment criteria.

Drag the pointer on the image view pane to make a yellow rectangular selection that covers the ROI, and the brightness of the overall image is adjusted. Clicking two diagonally opposite points also make a rectangle.



To adjust the specified area

Click [Select], point any handle to change the pointer to ⤡ (resize pointer), and then drag the handle.

To cancel the selection

Click [Delete].

Continued

3 Exit adjustment mode.

Click [OK].

6.1.7 Cropping images

A green frame indicating a preset cropping area (this information will be transferred to a storage server or printer) appears on a preview image immediately after an exposure. The preset cropping area can be modified using .

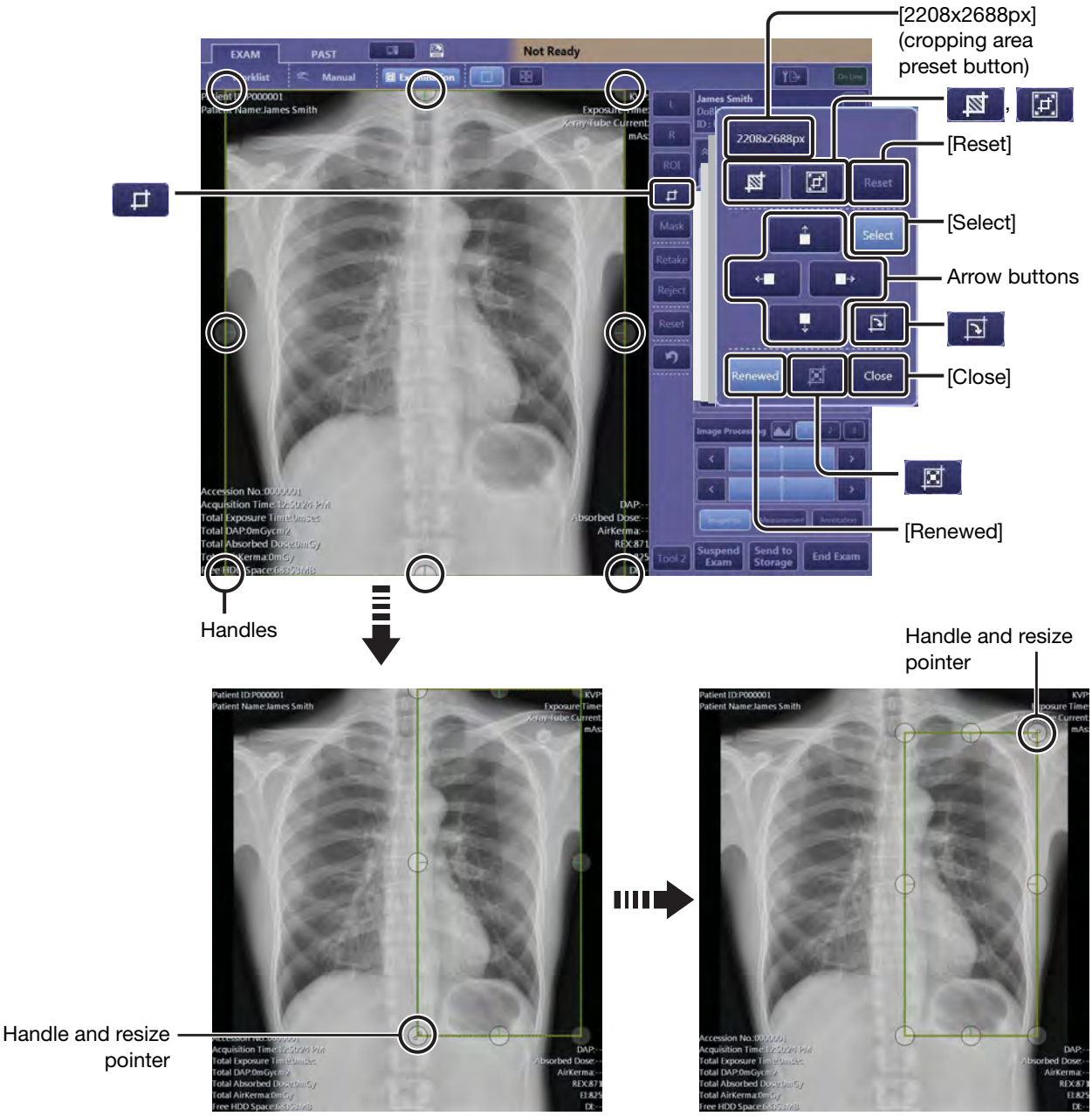
NOTE: Preset cropping area is specified in the Common Cropping Area options in the System Settings tab (refer to 2.3.1 in the Setup Guide), or the Cropping Area options in the Protocol Workspace Settings screen (refer to 3.4.1 in the Setup Guide).

1 Enable cropping mode.

Click .
A crop frame and handles (at the corners and the middle of each side) appear on the preview image.

2 Specify the area to be kept.

If handles are not displayed, click [Select], and drag any handle to adjust the cropping area.



To specify a new area

Click [Renewed] so that it is highlighted and the pointer changes to (crop pointer). Click two diagonally opposite points or drag the pointer on the image to specify a rectangular area.

To adjust the specified area

Point any handle to change the pointer to (resize pointer), and then drag the handle.

Continued

To move the specified area

Click [Renewed] so that the highlighting is cleared, hover on the cropping area to change the pointer to (move pointer), and then drag the area. To finely adjust the position, click the arrow buttons (/ / /).

To rotate the specified area

Click to rotate the area clockwise 90 degrees.

NOTE: When Custom Area is selected for the Cropping Area option in Protocol Workspace Settings (refer to 3.4.1 in the Setup Guide), when is clicked, the setting for the Alignment option will be applied to the cropping area.

To cancel the changes and resume to the area specified in Protocol Workspace Settings

Click [Reset]. For details, refer to 2.3.1 and 3.4.1 in the Setup Guide.

To specify an area with a single click of a button

Click one of the following buttons to cancel the selection and specify the preset area. Three preset areas can be specified.

[2208x2688px] (Cropping Area Preset):
For radiographic images, resumes default custom cropping area specified in the Common Cropping Area options in the System Settings tab (refer to 2.3.1 in the Setup Guide), or Cropping Area options in the Protocol Workspace Settings screen (refer to 3.4.1 in the Setup Guide).

(Detected Irradiated Field):
Crops only the irradiated field.

(Effective Area):
Crops the effective area of the detector.

NOTE: Custom area buttons other than [2208x2688px] can be preset. For details, refer to 2.3.3 in the Setup Guide.

NOTE: When users compare images on the monitor display, the following should be observed: As the size of Effective Area/Detected Irradiated Field varies depending on the detector, the magnification may change among images that are captured using different detectors when images are displayed after clicking .

NOTE: [2208x2688px] and are not available for partial images captured by long-length imaging, and [2208x2688px] and are not available for combined long-length images as well. For details, see chapter 8.

3 Set the area and exit cropping mode.

Click [OK] or .

To mask outside the specified area

Click . Only when masking is enabled for the image (see 6.1.8), is available.

6.1.8 Masking the peripheral area

The area outside a specified polygonal area can be masked (see also 7.2.9) on images.

NOTE: Unlike its gray appearance on the screen, the masked area appears black on the images transferred to a storage server or printer.

1 Enable mask edit mode.

Click [Mask].

2 Show the specified area.

Click to highlight. The currently specified area appears enclosed by a dotted line. A new area can also be specified while a specified area is shown.

NOTE: The masked area on a radiographic image immediately after an exposure is identical to the area outside the detected irradiated field.

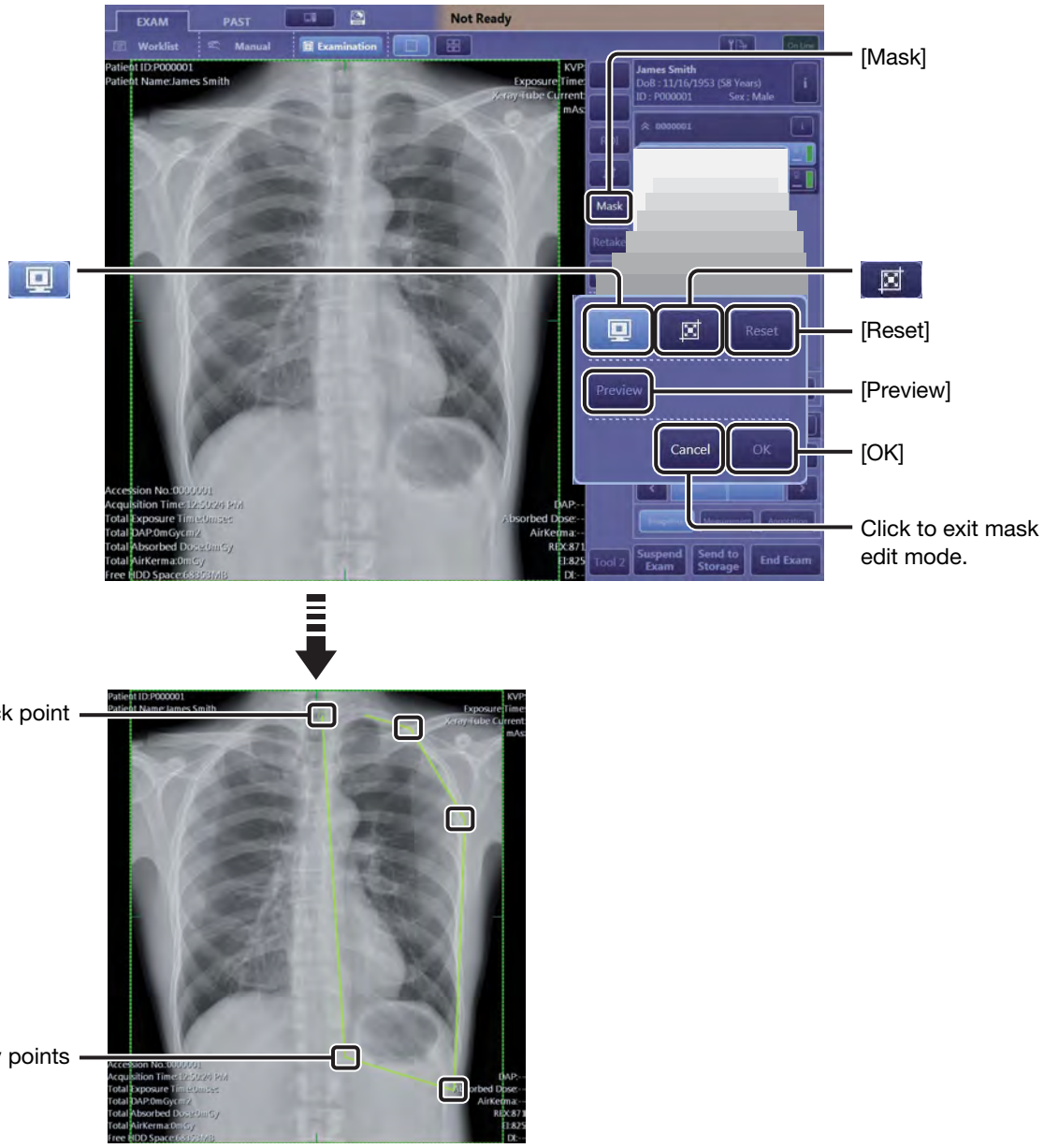
To hide the specified area

Click to clear the highlight.

Continued

3 Specify the area to be kept.

Click repeatedly on the image view pane to create boundary points for the area to be kept, and then enclose the area by either clicking [Preview] or the initial click point. Double-clicking the last boundary point will also enclose the area. Up to 12 boundary points can be created.



To specify a rectangular area

Click a point on the image view pane, and then double-click the diagonally opposite point.

To fit the specified area to the current cropping area

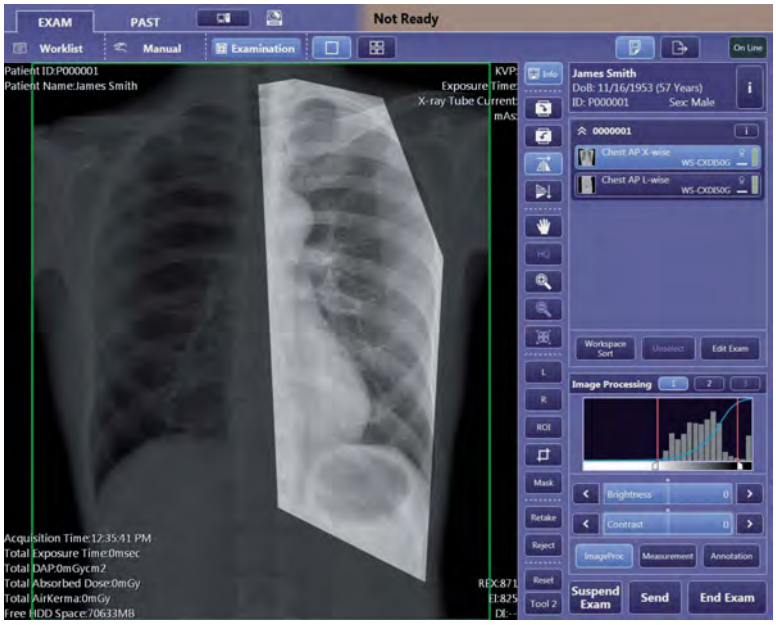
Click . The area outside the current cropping area will be masked.

To cancel changes and resume to the area when the mask edit was started

Click [Reset].

4 Apply the masking effect to the image and exit mask edit mode.

Click [OK].



To disable the masking effect and exit mask edit mode

Click so that the highlighting is cleared, and then click [OK]. The masked area will not be displayed, but the area itself will be saved.

NOTE: Changes made to the on/off setting of the masking effect do not affect the state of the Mask check box (see 7.2.9).

6.2 Using the Image Processing panel (Level 1)

When reviewing images, fine adjustment of the brightness and contrast is available using the Image Processing panel.

NOTE: Depending on the image, the adjustable range of the following image processing parameters may be restricted. In such cases, the preview image may not change even if the sliders are moved past a certain point.

Imaging parameter adjustment restrictions

Most of the advanced imaging parameters are preset when the Software is installed, and their access privileges are classified into two levels, 2 and 3. These levels may be restricted to administrative users. The advanced parameters for level 2 and 3 modes are explained in 7.2.1 Switching access levels.

If the Image Processing panel does not appear

Click [ImageProc]. To hide the panel, click it again.

6.2.1 Adjusting the brightness of bright region and dark region

These parameters are available for all access levels. However, at all level modes, adjustments are not needed for normal use, since appropriate pre-processing is applied to the images.

NOTE: For further information on auto brightness adjustment applied to bright and dark regions, refer to 5.2.3 “Dynamic Range Analysis” and 5.3.2 “Dynamic Range Adjustment” under Appendix in the Setup Guide.

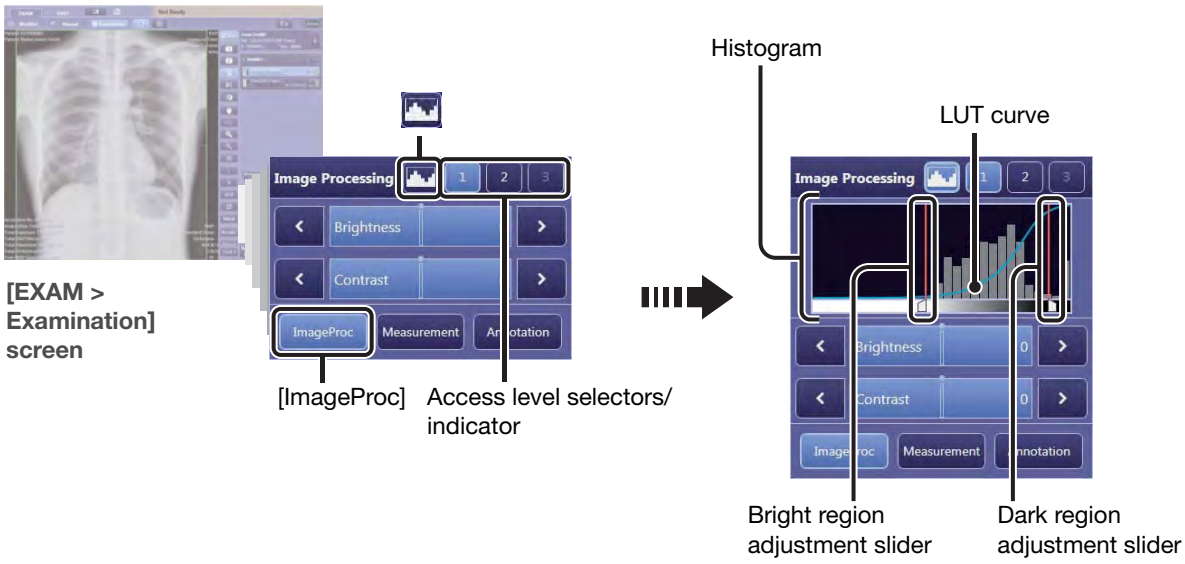
NOTE: These adjustments are not available when the REX option is selected for Brightness Adjustment mode (see 7.2.3).

LUT (look up table) curve

The raw data generated by the detector’s sensor panel is automatically processed using one of the preset imaging parameters (LUT curves) that suit several anatomical parts and is shown in the image view pane as a film-like image. The LUT curve changes, reflecting changes made using the Brightness and Contrast controls. The stronger the contrast, the steeper the curve becomes, and the weaker the contrast, the flatter the curve becomes. Note that this curve serves as a rough indicator.

Histogram

This indicates the pixel value distribution of the raw data generated by the detector’s sensor, and is used as a rough indicator of the X-ray dose. The x-axis of this histogram is logarithmic. The more the histogram leans toward the right, the higher the dose. The adjustment of processing controls will not affect the histogram.



1 Show the histogram and LUT curve.

Click . Clicking toggles between the on/off state of the histogram and LUT curve.

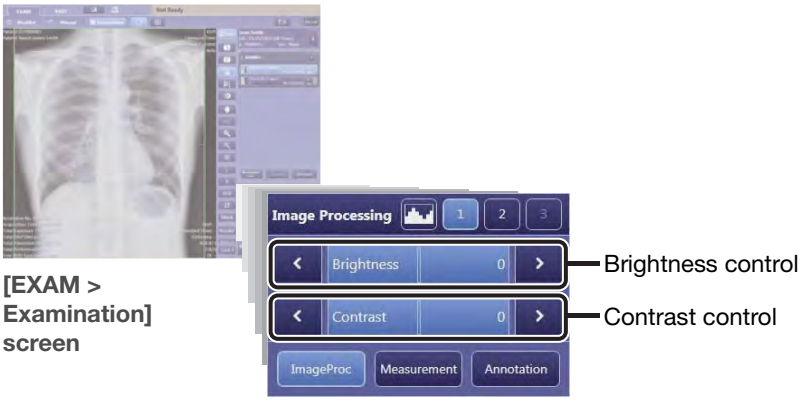
2 Increase or decrease the brightness of bright region.

To increase, drag the bright region adjustment slider to the right.
To decrease, drag the bright region adjustment slider to the left.

3 Increase or decrease the brightness of dark region.

To increase, drag the dark region adjustment slider to the right.
To decrease, drag the dark region adjustment slider to the left.

6.2.2 Adjusting the overall brightness and contrast



[EXAM > Examination] screen

1 Adjust the brightness.

Rotate the scroll wheel on the mouse or click the arrows of the Brightness control.
To increase, move the slider to the right.
To decrease, move the slider to the left.

NOTE: Fine-adjust the brightness in a range of -10 to +10 relative to the Base Brightness value.
The supported adjustment range depends on the Base Brightness value. In some cases, the range may be narrower than -10 to +10.
For details on Base Brightness control, see 7.2.3.

NOTE: When adjusting images where negative/positive inversion is applied, the moving directions of the Brightness control are reversed.

2 Adjust the contrast.

Rotate the scroll wheel on the mouse or click the arrows of the Contrast control.
To increase, move the slider to the right.
To decrease, move the slider to the left.

NOTE: Fine-adjust the contrast in a range of -10 to +10 relative to the Base Contrast value.
The supported adjustment range depends on the Base Contrast value. In some cases, the range may be narrower than -10 to +10.
For details on Base Contrast control, see 7.2.3.

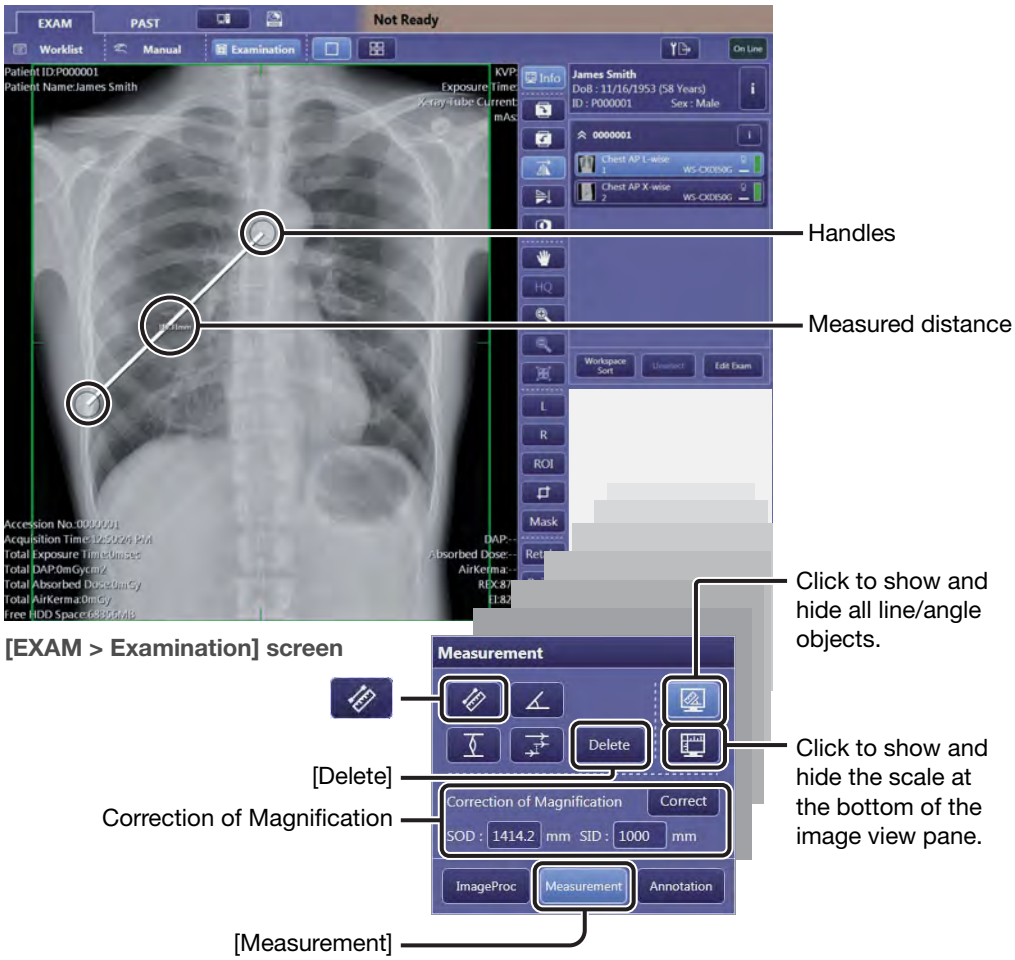
6.3 Using the Measurement panel

When reviewing images, measurement objects such as line/angle objects, values, and units are superimposed over the images on the image view pane, and these objects are embedded in the image data to be transferred to a storage server, printer, or other destination directories.

To enable measurement mode

Click [Measurement].

6.3.1 Measuring the distance between two specific points



NOTE: The measurement unit and the scale shown at the bottom of the image view pane can be selected on the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

Continued

1 Enable distance mode.

Click .

NOTE: Once distance mode is enabled, operations other than step 2 below are disabled. Be sure to complete operations through step 2.

2 Measure the distance between two specific points.

Click two points on the image view pane. A line object indicating the measured distance between the points appears.

3 Perform other distance measurements.

Repeat steps 1 and 2.

To change the position and length of a line object

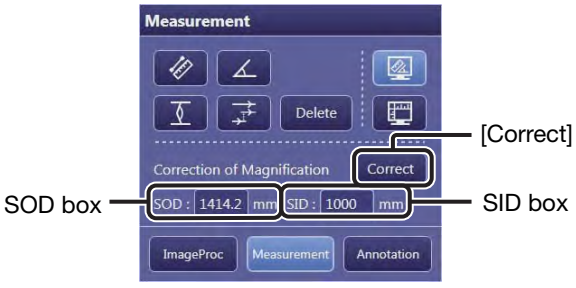
Click on the line object so that handles appear on both ends of the object. Drag the middle of the object to move, or drag either handle to lengthen or shorten the line object.

To delete a line object

Click on the line object so that handles appear on both ends of the object, and then click [Delete].

To correct the measured values and the scale

The measured values can be corrected using the magnification ratio based on the SOD (source object distance) and SID (source image distance) values. The values preset for the protocol (refer to 3.4.1 in the Setup Guide) or executed values received from the X-ray generator are displayed in the SOD and SID boxes in the Correction of Magnification option. The scale displayed at the bottom of the image view pane also changes.



Measurement panel

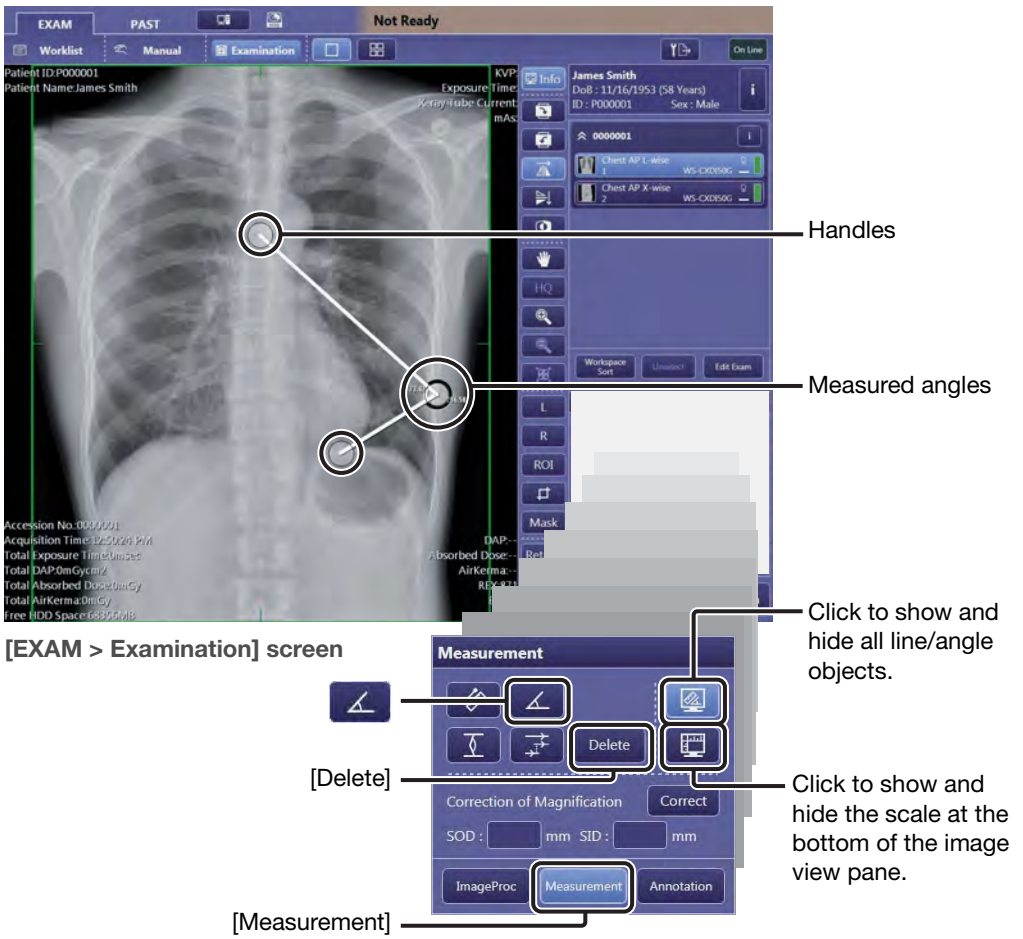
To correct the measured values, enter or modify the values in the SOD and SID boxes, and then click [Correct].

NOTE: The measured value in height difference mode (see 6.3.4) will also be corrected.

4 Exit measurement mode.

Click [Measurement].

6.3.2 Measuring the angle of a specific part



NOTE: The measurement unit and the scale shown at the bottom of the image view pane can be selected on the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

1 Enable angle mode.

Click .

NOTE: Once angle mode is enabled, operations other than step 2 below are disabled. Be sure to complete operations through step 2.

2 Measure the angle of a specific part.

Click three points on the image view pane so that an angle is formed by two line segments. An angle object, with indicators for the measured angles (both interior and exterior) appears.

Continued

3 Perform other angle measurements.

Repeat steps 1 and 2.

To change the angle and position of an angle object

Click on the angle object so that handles appear at the angle and the two endpoints of the object. Drag a line to move it, or drag either handle to change the angle.

To delete an angle object

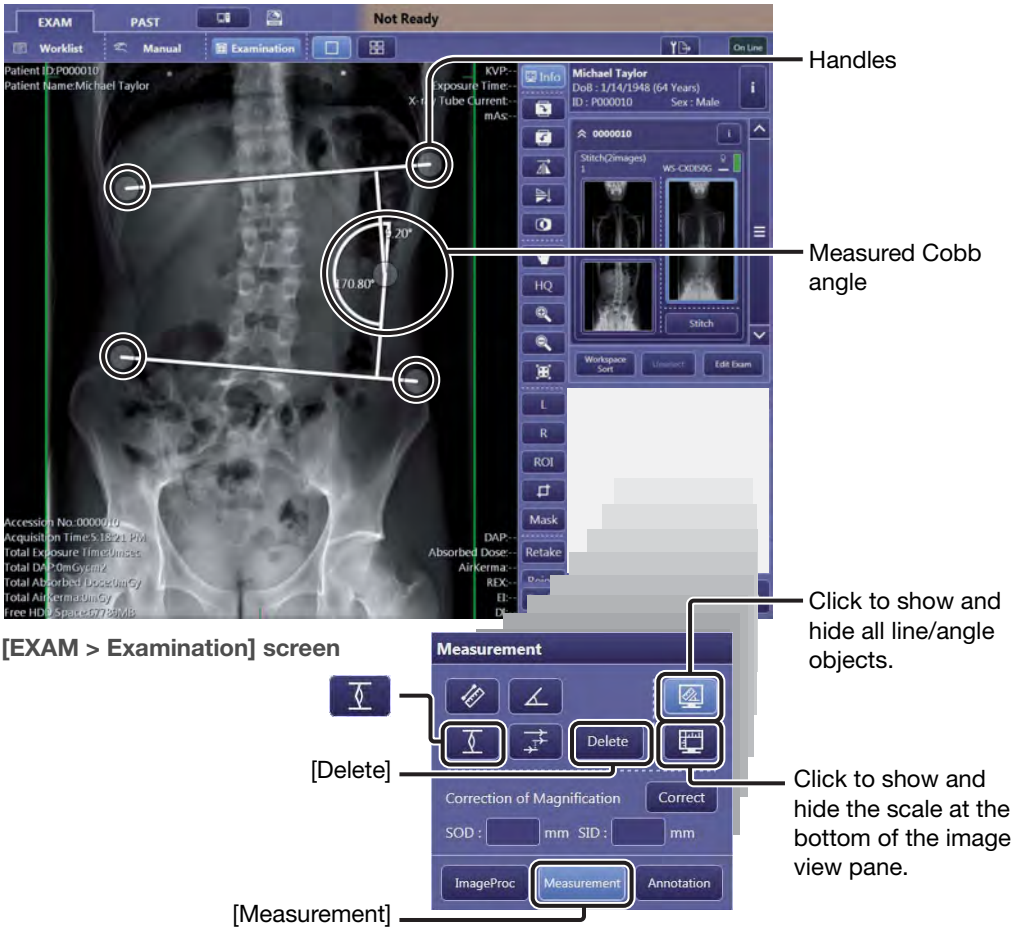
Click on the angle object so that handles appear at the angle and the two endpoints of the object, and then click [Delete].

4 Exit measurement mode.

Click [Measurement].

6.3.3 Measuring the Cobb angle

The Cobb angle is used to evaluate the curvature of the spine in a diagnosis of scoliosis.
For long-length images that capture the entire spine and/or lower extremities, see chapter 8.



[EXAM > Examination] screen

NOTE: The measurement unit and the scale shown at the bottom of the image view pane can be selected on the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

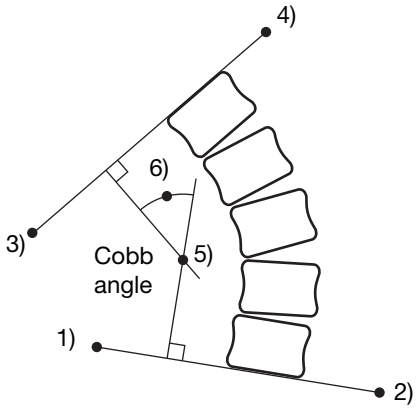
1 Enable Cobb angle mode.

Click . The on-screen Help for measurement location settings is provided at the top of the image view pane.

NOTE: Once Cobb angle mode is enabled, operations other than step 2 below are disabled. Be sure to complete operations through step 2.

2 Measure the Cobb angle of a specific part.

Click six points on the image view pane in the order shown in the figure below to form a Cobb angle. A Cobb angle object, with indicators for the measured angles (both interior and exterior) appears.



1), 2): The entire edge of the segment identifying the inferior surface of the lower vertebra
3), 4): The entire edge of the segment identifying the superior surface of the upper vertebra
5): The center point of Cobb angle
6): A set point to determine the arc size of Cobb angle indication

3 Perform other Cobb angle measurements.

Repeat steps 1 and 2.

To change the angle and position of a Cobb angle object

Click on the Cobb angle object so that handles appear at the angle and the four end points of the object. Drag a line to move it, or drag either handle to change the Cobb angle.

To delete a Cobb angle object

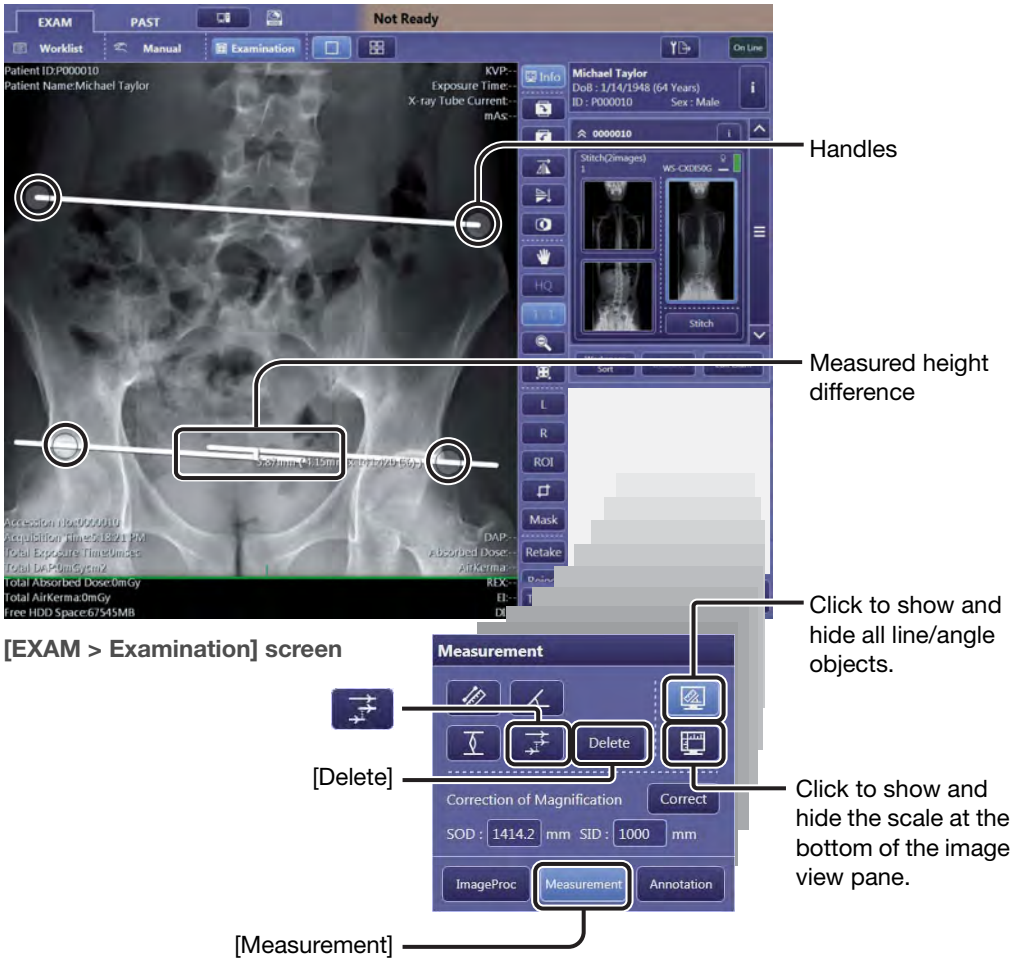
Click on the Cobb angle object so that handles appear at the angle and the four end points of the object, and then click [Delete].

4 Exit measurement mode.

Click [Measurement].

6.3.4 Measuring the height difference

In preoperative/postoperative diagnosis for knee replacement arthroplasty, the height differences between the right-and-left sides of the pelvis or kneecaps are measured to check the alignment of the body.
For long-length images that capture the entire spine and/or lower extremities, see chapter 8.



NOTE: The measurement unit and the scale shown at the bottom of the image view pane can be selected on the system setup screen. For details, refer to 2.4.1 in the Setup Guide.

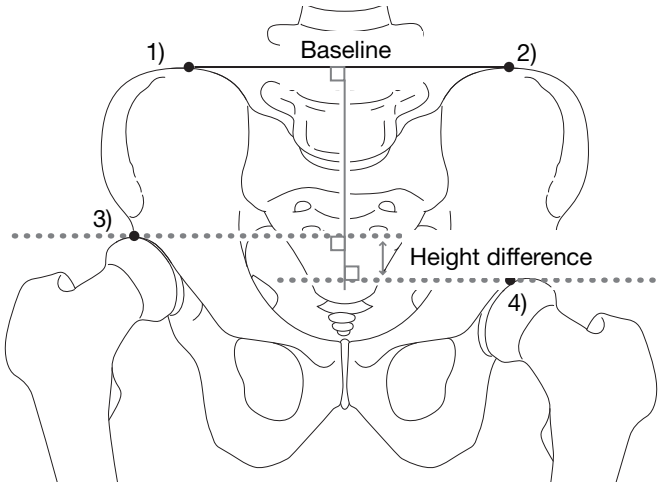
1 Enable height difference mode.

Click . The on-screen Help for measurement location settings is available at the top of the image view pane.

NOTE: Once height difference mode is enabled, operations other than step 2 below are disabled. Be sure to complete operations through step 2.

2 Measure the height difference between two specific points.

Click four points on the image view pane to determine a reference line and two measurement points. A line object indicating the measured height between the points appears.



1), 2): The entire edge of the segment identifying the baseline
3): The start point of the measurement
4): The end point of the measurement

3 Perform other height difference measurements.

Repeat steps 1 and 2.

To change the position of the height measurement object

Click the height measurement object so that handles appear at the four points of the object. Drag the baseline or either handle to move the position of the height measurement object.

To delete the height measurement object

Click the height measurement object so that handles appear at the four points of the object, and then click [Delete].

To correct the measured values and the scale

See step 3 in 6.3.1 for details.

4 Exit measurement mode.

Click [Measurement].

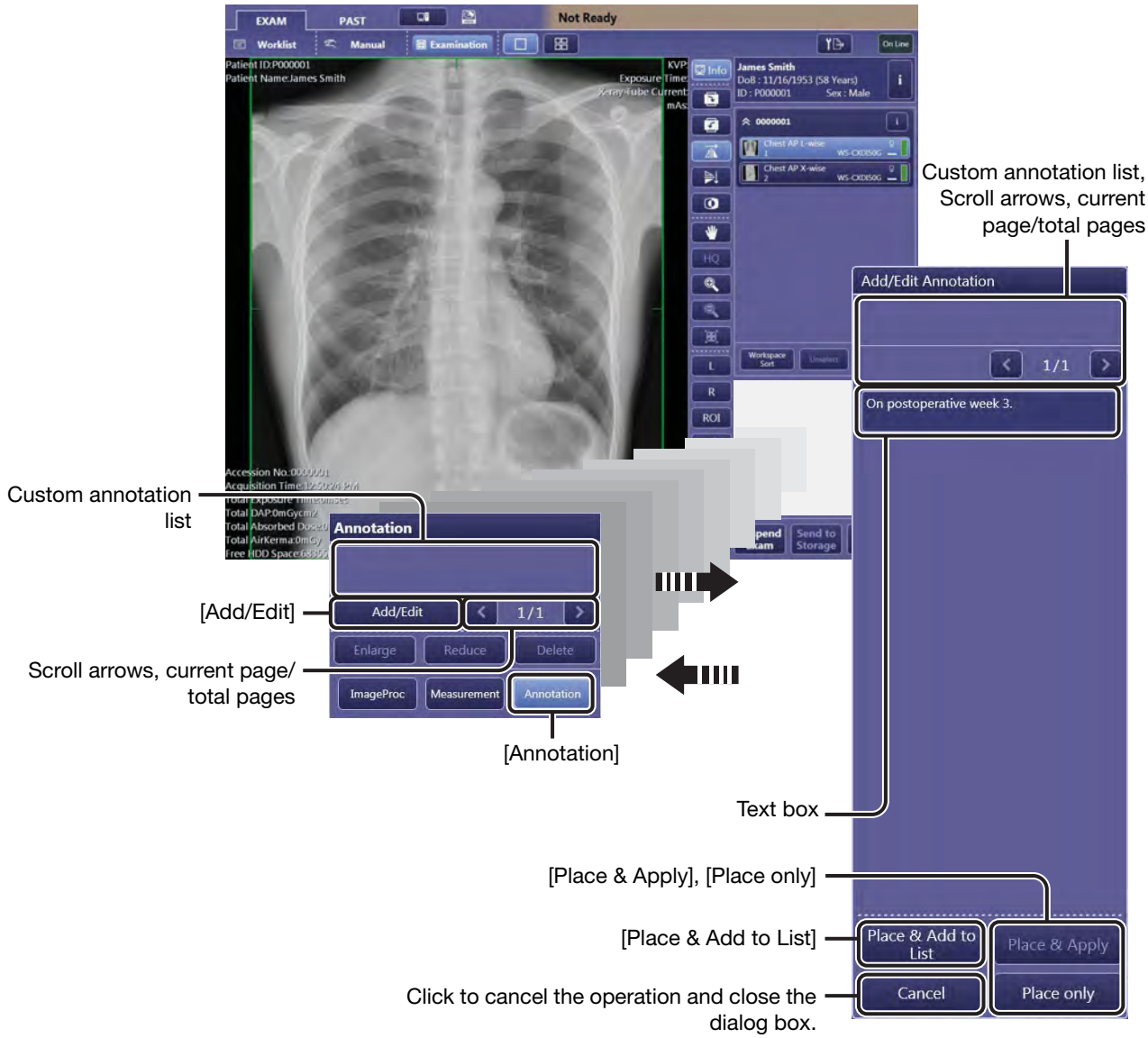
6.4 Using the Annotation panel

Custom annotations created following the procedures below can be embedded on both the screen preview images and on film images.

6.4.1 Creating/editing custom annotations

1 Enable annotation mode.

Click [Annotation].



2 Select a preset custom annotation or input a new annotation.

Select a preset custom annotation from the custom annotation list in the Annotation panel.
To input a new annotation, click [Add/Edit] in the Annotation panel to show the Add/Edit Annotation dialog box, type an annotation in the text box, and then click [Place only].
The selected custom annotation or a new annotation, highlighted with a dashed orange border, appears at the preset position on the image view pane.

To add the new annotation to the custom annotation list

If the newly input annotation is expected to be frequently used, click [Place & Add to List] instead of [Place only].

NOTE: Custom annotations can also be created on the system setup screen. For details, refer to 2.5.2 in the Setup Guide.

NOTE: A maximum of 100 annotations can be registered in the custom annotation list. If the target annotation cannot be found in the list, click the scroll arrows to navigate the list.

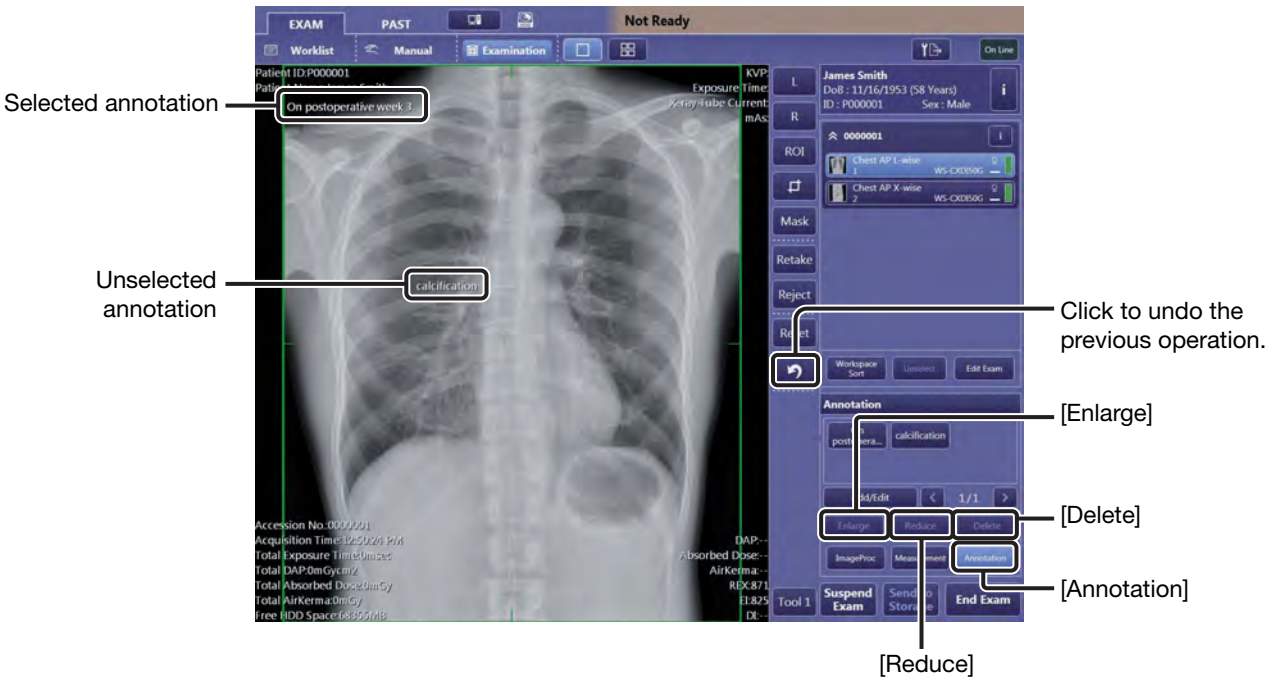
To modify a preset custom annotation

In the Add/Edit Annotation dialog box, select a preset custom annotation from the custom annotation list to put the text in the text box, and then modify the text. When using a modified annotation temporarily, click [Place only]. When both the original and modified annotations must be saved in the list, click [Place & Add to List]. When the original annotations must be overwritten with the modified one, click [Place & Apply].

Continued

To select/deselect an annotation

Click the target annotation on the image view pane. An annotation highlighted with dashed orange border is selected and active. Before performing other operation, be sure to deselect an active annotation by dragging it to the same position. Clicking an inactive annotation makes it active.



3 Change the position of an annotation.

Click an annotation to select, and then drag it to any position or click any point within the image view pane.

4 Change the size of an annotation.

Click an annotation to select, and then click [Enlarge] or [Reduce] repeatedly until the desired size is reached.

To delete an annotation

Click an annotation to select, and then click [Delete].

5 Continue to edit other annotations.

Repeat steps 2 through 4.

6 Exit annotation mode.

Click [Annotation].

7 Other Functions

7.1 Printing and transferring images

7.2 Using the Image Processing panel (Levels 2 and 3)

This chapter explains how to arrange images, and how to print or transfer images. Advanced image processing features for administrative users are also explained.

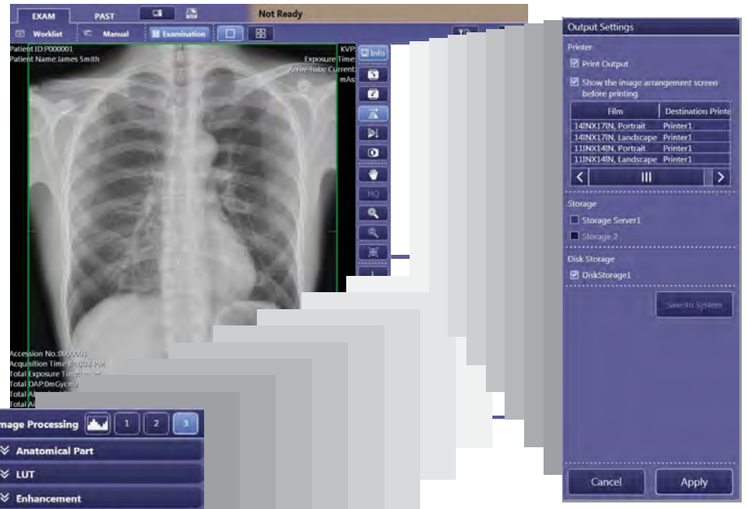
Workflow

[EXAM > Examination] screen

Conducting Examinations (see chapter 4)
Reviewing Images (see chapter 5)

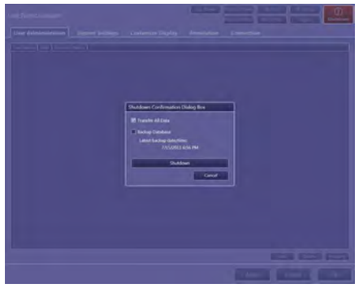
[PAST > View] screen

Reviewing images on the [PAST > View] screen (see 5.2)



7.1 Printing and transferring images

7.2 Using the Image Processing panel (Levels 2 and 3)



Shutting down the Software (see 2.2)

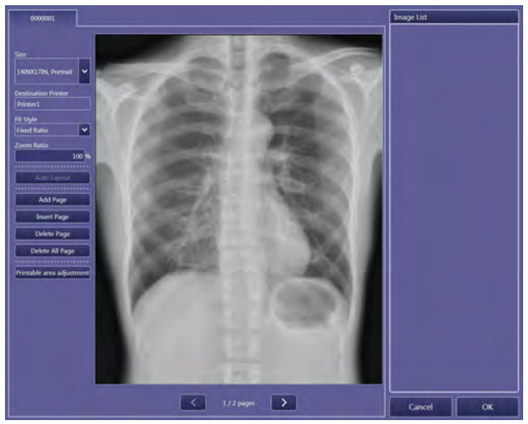


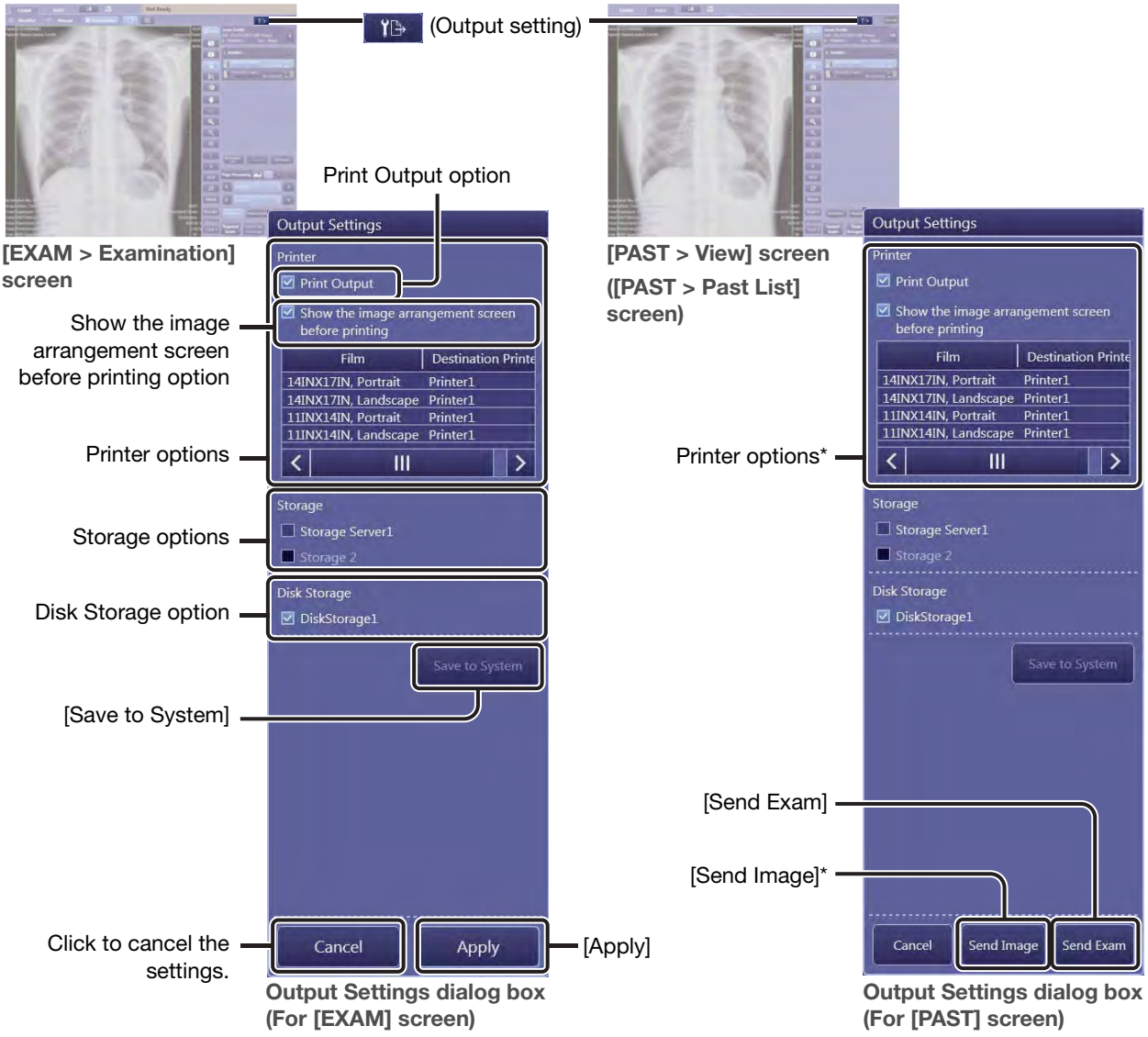
Image arrangement screen

7.1.2 Arranging and printing images automatically

7.1 Printing and transferring images

The Software can be configured to automatically print or transfer images to PACS, storage media, and other destination directories after finishing examinations on the [EXAM > Examination] screen. For details on configuring the destinations, refer to 2.6.1, 2.6.2, and 2.6.5 in the Setup Guide.
Users can manually perform additional image transfer as required.

NOTE: Images cannot be printed from the [PAST > Past List] screen.



* Not available in the [PAST > Past List] screen.

Target images for printing or data transfer

The range of images to be printed or transferred will vary depending on conditions.
When starting operations in the [EXAM > Examination] screen, images in the current Exam will be printed or transferred.
When starting operations in the [PAST > Past List] screen, images in the selected Exam will be printed or transferred.
When starting operations in the [PAST > View] screen (see 7.1.4), either the current image or images in the current Exam will be printed or transferred.

7.1.1 Checking and changing the image transfer settings

Before finishing examinations, users can check and change the destination directories and printers.

1 Show the Output Settings dialog box.

Click .

To enable the preset printer for printing images

Select the Print Output option. When users need to check the image arrangement before printing, select the Show the image arrangement screen before printing option.
To disable the printer, clear the Print Output option.

To enable the preset storage servers (PACS) or a storage media for image transfer

Select a storage server name or storage media name option under the Storage or Disk Storage option. To disable the storage server or storage media, clear the option.

To save the changes made in the Output Settings dialog box

Click [Save to System]. The changes will be reflected in the default setting that can be configured in the Connection tab in the system setup screen, and also applied to subsequent printing and transfer operations.

2 Apply the changes and close the dialog box.

Click [Apply] to apply changes to the current study.

NOTE: The changes are cleared after the study is ended (and its image printing/transfer is complete) or suspended, and then the default settings resume.

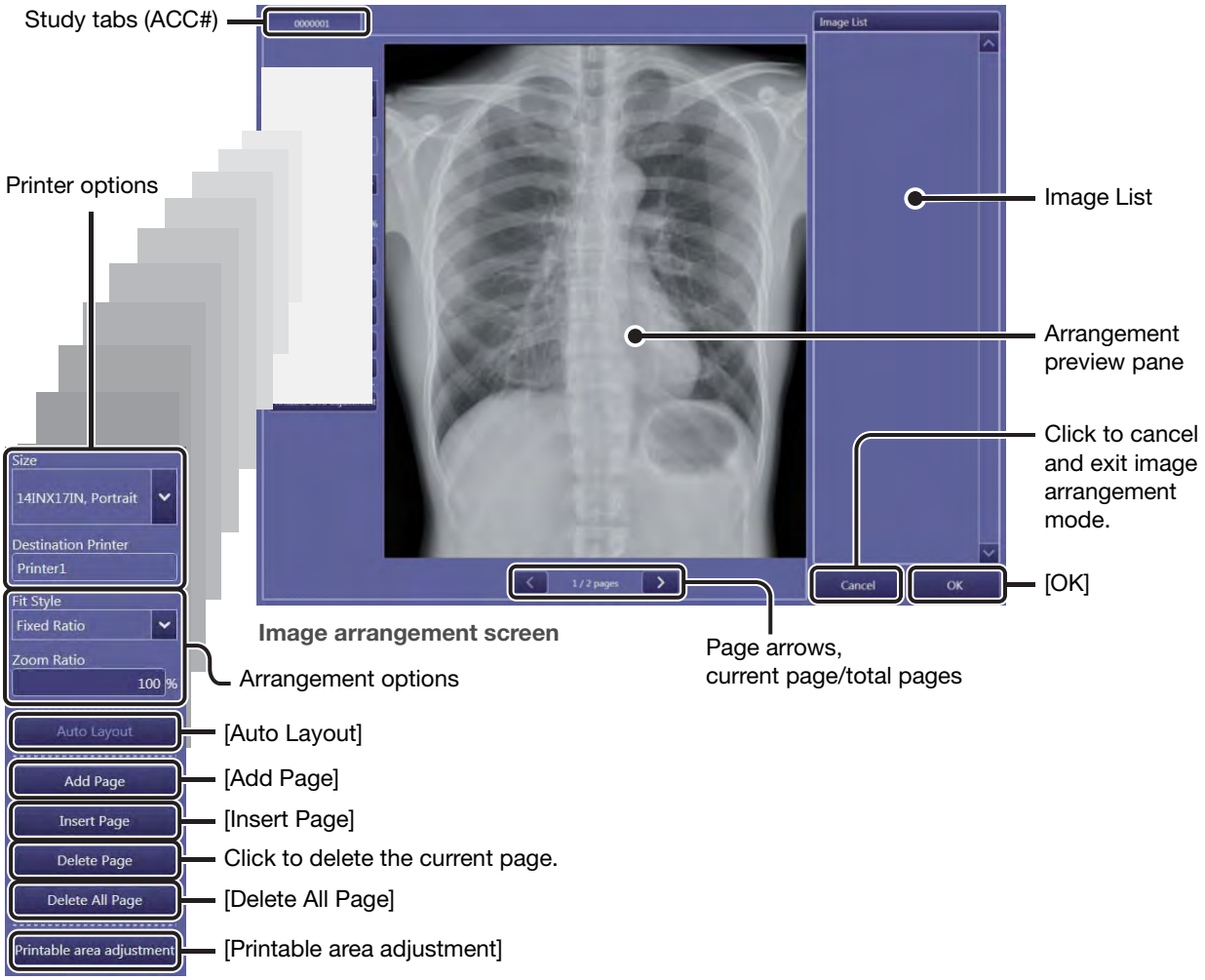
7.1.2 Arranging and printing images automatically

The Software can be configured to start printing automatically after finishing an examination by clicking [End Exam]. Furthermore, depending on the settings, the image arrangement screen, that manages printer settings and image arrangement features, appears before printing starts. In this screen, users can check and change image arrangement on film sheets as well as printer settings.

NOTE: For details on displaying the image arrangement screen and other printer settings, refer to step 5 and 6 under 2.6.2 in the Setup Guide.

NOTE: If the Film Size and Direction option in the Protocol Workspace Settings screen has been left blank for the protocol used for capturing the image currently selected for printing, automatic arrangement feature does not function. In such cases, click [OK] in the warning dialog box that appears, and then arrange images manually (see 7.1.3).

[EXAM > Examination] screen



Continued

1 Finish an examination.

Click [Edit Exam] in the [EXAM > Examination] screen.
All images to be printed in the current Exam are arranged in the arrangement preview pane.

NOTE: The essential settings for the automatic arrangement feature such as the Film Size and Direction, Fit option, and other options, are configured in the Printer tab. For details on operations, refer to step 6 under 2.6.2 in the Setup Guide.

NOTE: Automatic arrangement is performed based on the conducted sequence of the studies. Although blank segments may remain on some pages depending on the size and shape of images, this is the best result and does not indicate a malfunction of the Software.

2 Select the target study.

Click a study tab. Images in a single study are arranged under a single study tab. So, there appear just as many study tabs for the studies as there are in the current Exam.

3 Change arrangement and modify the printer/arrangement options.

Operations and settings relevant to image arrangement modification are following:

To temporarily exclude an image from arrangement preview pane

Drag an image from the arrangement preview pane to the Image List.

To exchange positions of two images

Drag one image to the other.

To specify printer and arrangement options

Click the page arrows to show the target page, and then specify the following printer and arrangement options. These options can be set for each page.

Size: Click on the drop-down arrow and select an option from the list. The next **Destination Printer** option will be selected automatically depending on the configuration made in the Printer tab (refer to 2.6.2 in the Setup Guide).

Fit Style: Select a scaling option from among **Fit** (the image is shrunk or enlarged to fit the image box keeping its aspect ratio) and **Fixed Ratio** (the image is placed at the center of the image box at the specified zoom ratio).

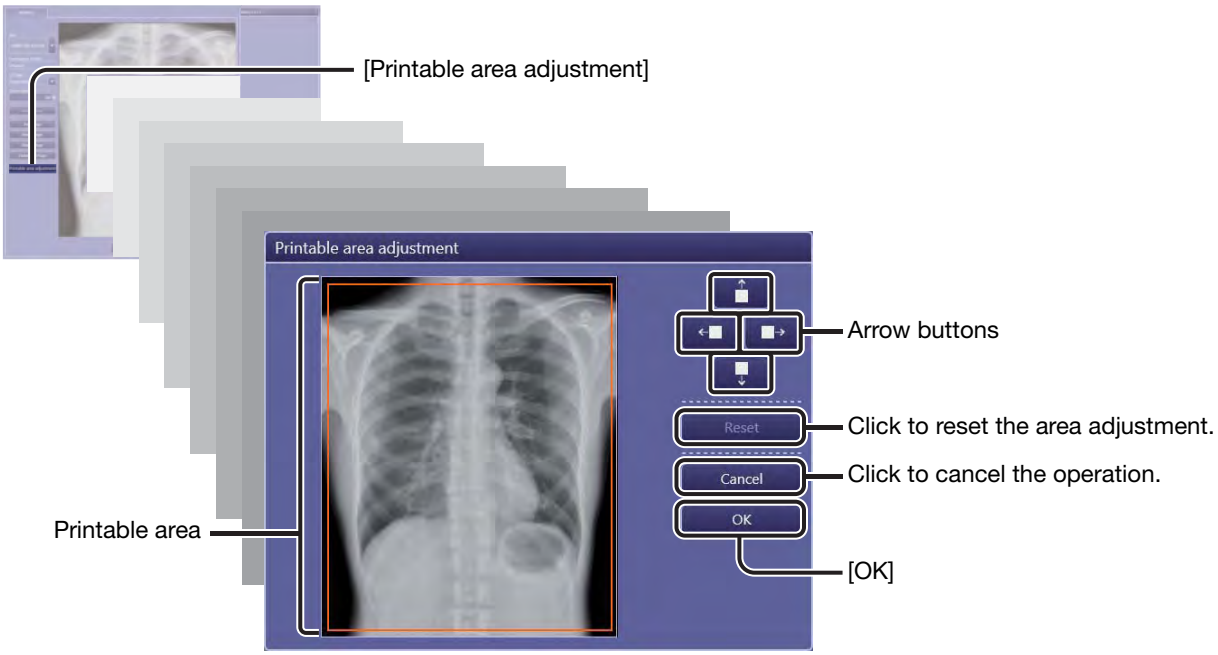
Zoom Ratio: When Fixed Ratio is selected for the Fit Style option above, it is necessary to specify the ratio in %.

NOTE: Settings for this feature can be preset for each protocol.
Refer to “Protocol Workspace Settings” in step 2 under 3.4.1 in the Setup Guide for details on the option settings.

To check and adjust the printable area

When an image is larger than the printable area, the area is automatically aligned to the center, top, or bottom of the image and the outside the area cannot be printed.
Click [Printable area adjustment] and check the area shown in the orange rectangle. Adjust the position using the arrow buttons and then click [OK] to set the adjustment.

NOTE: The printable area can be preset for each protocol.
Refer to “Protocol Workspace Settings” in step 2 under 3.4.1 in the Setup Guide for details on position settings.



NOTE: The scale of which magnification is corrected (see 6.3.1) can be embedded at the bottom of an image. For details on the settings, refer to step 5 under 2.6.5 in the Setup Guide.

NOTE: Even if the size of the ruler is corrected based on the SOD and SID values, minor errors may occur caused by the margins and other output settings of the printer.

4 Print the arranged images.

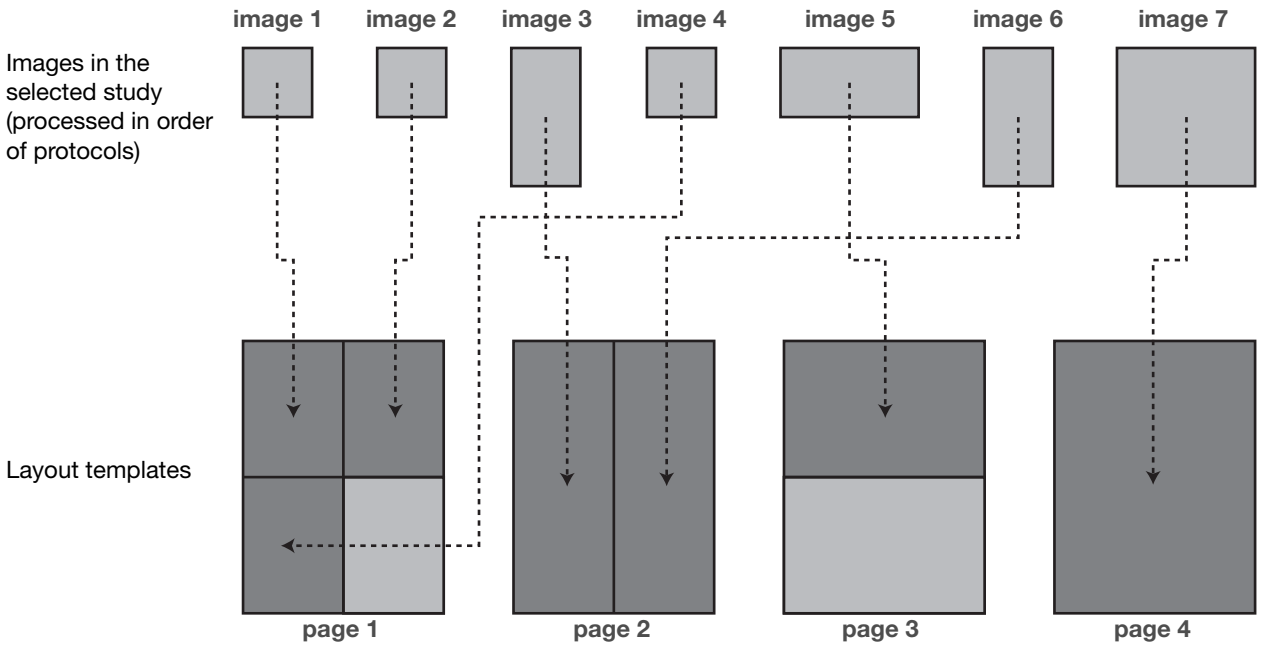
Click [OK].

NOTE: If a dialog box indicating “Arrange all images on the Image List.” appeared, drag all images to the arrangement preview pane, and click [OK].
For details on automatic image selection for printing (the Selected exposure mode to be printed automatically option), refer to step 5 under 2.6.2 in the Setup Guide.

Continued

Example of automatic arrangement

Layout templates are automatically selected according to the size and captured sequence of images.



7.1.3 Arranging and printing images manually

It is possible to create printouts of specified images arranged side by side on film sheets.

1 Finish an examination.

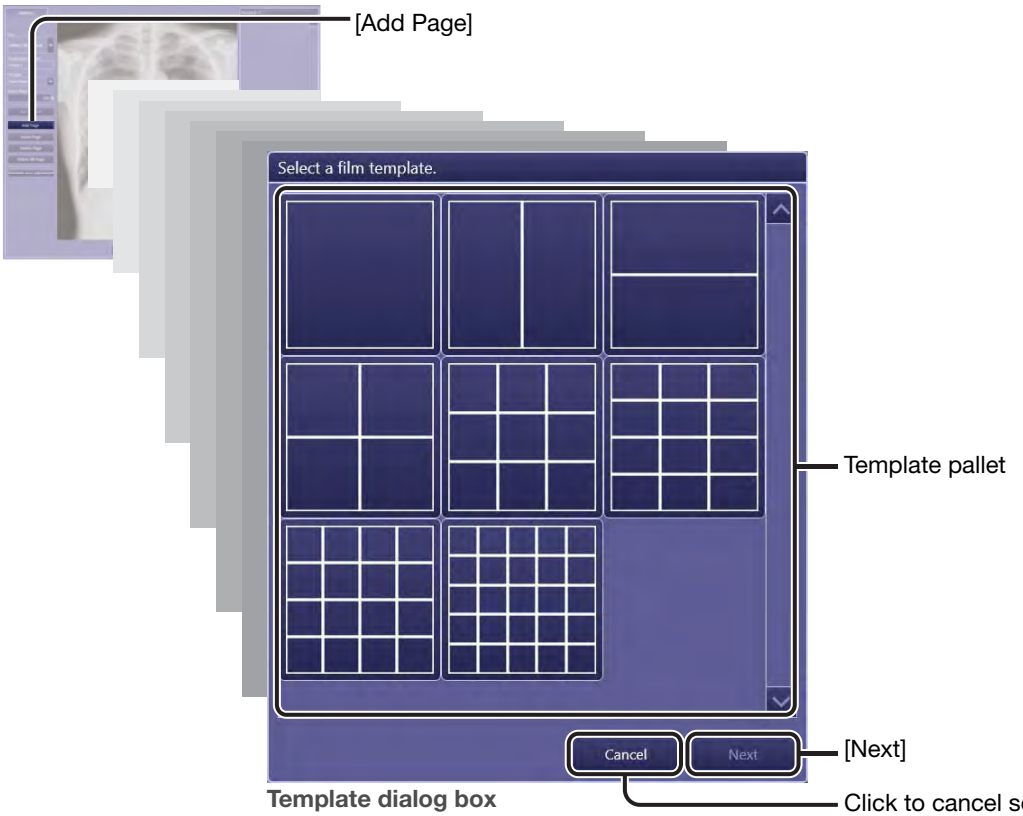
Click [Edit Exam] in the [EXAM > Examination] screen.
All images to be printed in the current Exam are arranged in the arrangement preview pane.

2 Enable image arrangement mode.

Click [Delete All Page] in the image arrangement screen. All images in the current Exam appear in the Image List.

3 Create a page and select a target layout template.

Click [Add Page], click on a target layout template in the template pallet that appears, and then click [Next].



Template dialog box

Continued

4 Select the film size and scaling options.

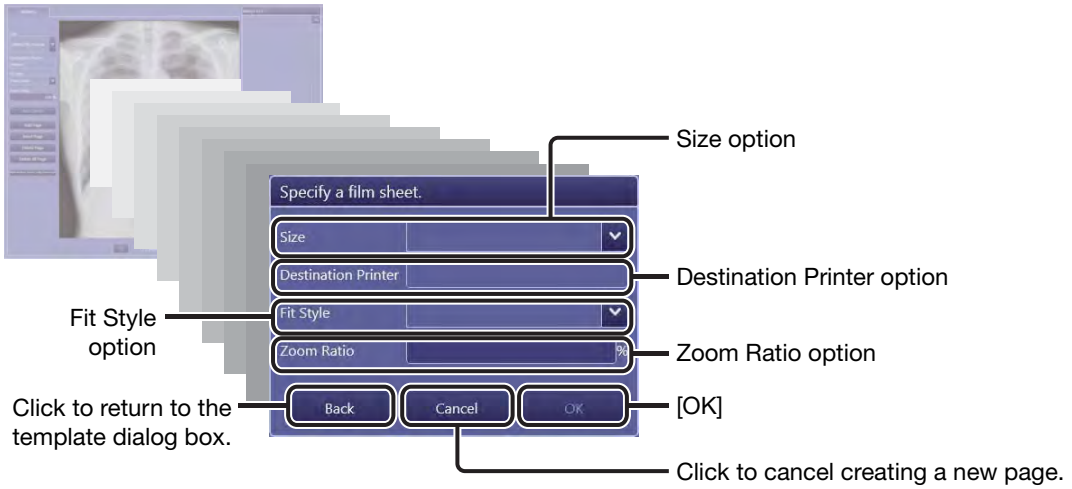
Select the following options and click [OK].

Size: Click on the drop-down arrow and select an option from the list. The next **Destination Printer** option will be selected automatically depending on the configuration made in the Printer tab (refer to 2.6.2 in the Setup Guide).

Fit Style: Select a scaling option from among **Fit** (The image is shrunk or enlarged to fit the image box keeping its aspect ratio.) and **Fixed Ratio** (The image is placed at the center of the image box at the specified zoom ratio.)

Zoom Ratio: When Fixed Ratio is selected for the Fit Style option above, it is necessary to specify the ratio in %.

When pages have already been created, the newly created page is added after the last page.



To insert a page before the current page

Click [Insert Page], and then click on a layout template on the list that appears.

5 Arrange the images.

Drag an image from the Image List to a destination image box in the arrangement preview pane.

NOTE: When all images on the Image List do not blink, add a new page before dragging the images.

6 Continue arrangement.

Repeat steps 3 through 5.

To automatically arrange the rest of the images

Click [Auto Layout], and then click [OK] in the confirmation dialog box that appears.

7 Print the arranged images.

Click [OK].

7.1.4 Manually printing images in the [PAST > View] screen.

1 Show the Output Settings dialog box.

Click .

2 Enable the preset printer.

Select the Print Output option. When users need to check the image arrangement before printing, select the Show the image arrangement screen before printing option.
To disable the printer, clear the Print Output option.

To save the changes made in the Output Settings dialog box

Click [Save to System]. The changes will be reflected in the default setting that can be configured in the Connection tab in the system setup screen, and also applied to subsequent printing and transfer operations.

3 Start printing.

Click [Send Image] to print the current image or click [Send Exam] to print the images in the current Exam.

4 Confirm or modify the image arrangement.

For details, see 7.1.2 and 7.1.3.

7.1.5 Manually transferring images to a storage server or storage media in the [PAST > View] screen

In the system setup screen, users can specify storage media and an external HDD in the image-capture computer where the Software itself is installed, as well as a storage server (PACS), to save captured images. For details on the setting for the destination directory, refer to 2.6.1 or 2.6.5 in the Setup Guide.

When starting on the [PAST > Past List] screen

Click the target study in the Study List.

EXAM
PAST
Past List
On Line
Search For Study List
Target object : Today Yesterday Recent week Recent month All Exam
Patient ID
Name
Accession No.
Study Date : 2 / 16 / 2012 3 / 16 / 2012
Clear
Study List
Local DB Disk Storage
Accession No. Study DateTime Patient ID Name Birth Print Result Store Result
3/8/2012 4:08:45 PM 20120308 Emergency
0000001 3/15/2012 2:14:47 PM P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:28 PM P000001 James Smith 11/16/1953
0000001 3/15/2012 6:16:42 PM P000001 James Smith 11/16/1953
0000001 3/15/2012 8:46:28 PM P000001 James Smith 11/16/1953
0000002 3/14/2012 10:01:18 AM P000002 Mary Johnson 5/8/1967
0000003 3/8/2012 6:10:33 PM P000003 Robert Williams 10/23/1935
0000003 3/8/2012 6:10:33 PM P000003 Robert Williams 10/23/1935
0000004 3/14/2012 1:06:12 PM P000004 Patricia Jones 6/12/1997
3/15/2012 7:13:46 PM P000008 Susan Wilson 3/20/1958
Select All Studies
3 / 10 Results
Restart Exam
Recall Copied Exam
Recall Exam

Click to select all studies.

[PAST > Past List] screen

To select multiple studies

Follow step 2 in 5.3, but do not click at the start of the operation.

1 Show the Output Settings dialog box.

Click .

2 Enable PACS or storage media.

Select a storage server name or storage media name option under the Storage or Disk Storage option. To disable the storage server or storage media, clear the option.

To save the changes made in the Output Settings dialog box

Click [Save to System]. The changes will be reflected in the default setting that can be configured in the Connection tab in the system setup screen, and also applied to subsequent printing and transfer operations.

3 Transfer images.

In the [PAST > Past List] screen:

Click [Send Exam] to transfer the images in the selected Exam.

In the [PAST > View] screen:

Click [Send Image] to transfer the current image or click [Send Exam] to transfer the images in the current Exam.

NOTE: Rejected images can be transferred to the preset directories using only [Send Image].

7.2 Using the Image Processing panel (Levels 2 and 3)

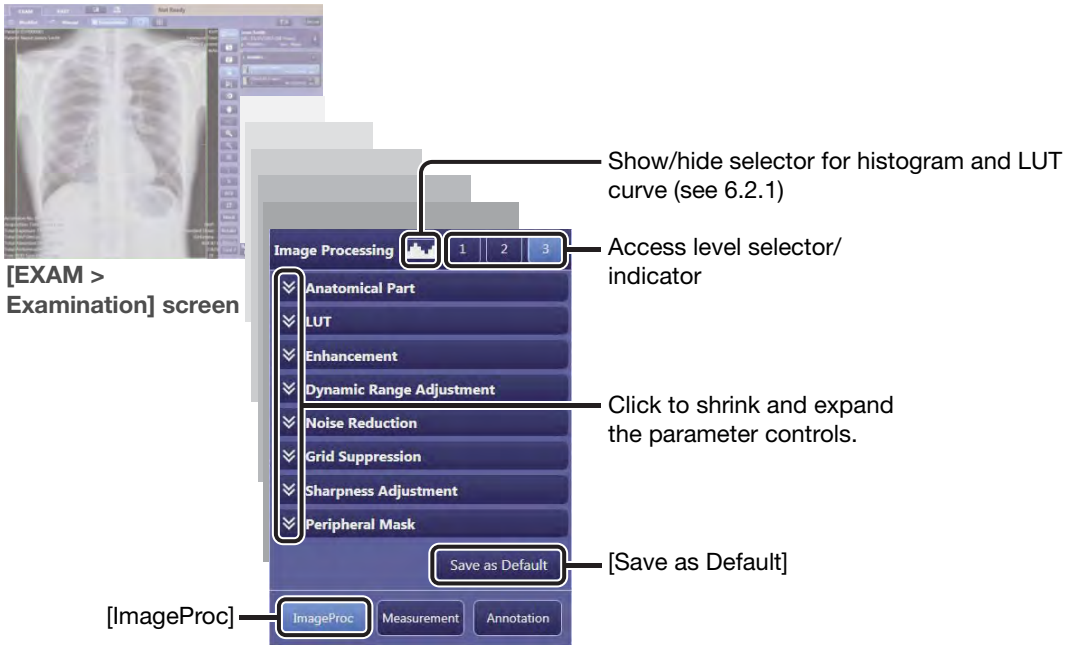
The following selectors and controls available in levels 2 and 3 mode select and adjust imaging parameters for advanced image processing.

NOTE: In general, users do not need to use controls in level 3 mode.

If the Image Processing panel does not appear

Click [ImageProc]. To hide the panel, click it again.

7.2.1 Switching access levels



If the Authorization dialog box appears

To perform restricted image processing, enter a user name with image processing privilege and password, and then click [OK]. For the image processing privilege, refer to 2.2 in the Setup Guide.

1 Enter level 2 mode.

Click [2] of the access level selector/indicator.

2 Enter level 3 mode.

Click [3] of the access level selector/indicator.

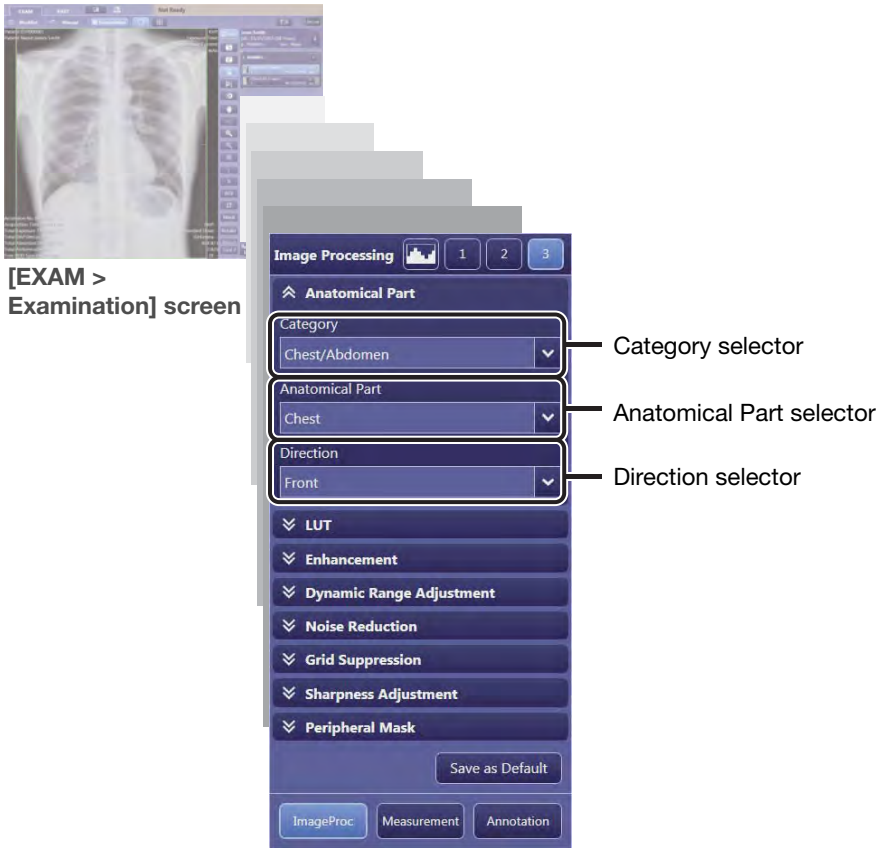
NOTE: To enter level 3 mode from level 1 mode, click [2] first, and then click [3] of the access level selector/indicator.

To save changes in the parameter settings for the current protocol

Click [Save as Default] in level 3 mode. In addition to the parameter changes made using the Image Processing panel, those of the toolbar will also be saved.

7.2.2 Automatically processing images by specific anatomical part (Anatomical Part control)

This control is available only in level 3 mode.
A set of processing parameters optimized for certain anatomical parts and their orientations can be applied to an image for automatic and efficient processing.



[EXAM > Examination] screen

Anatomical Part control

1 Narrow down the Anatomical Part options.

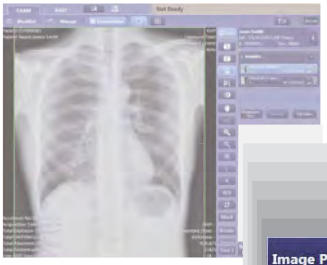
Click on the Category drop-down arrow, and select an option from the list.

2 Specify the target Anatomical Part and Direction options.

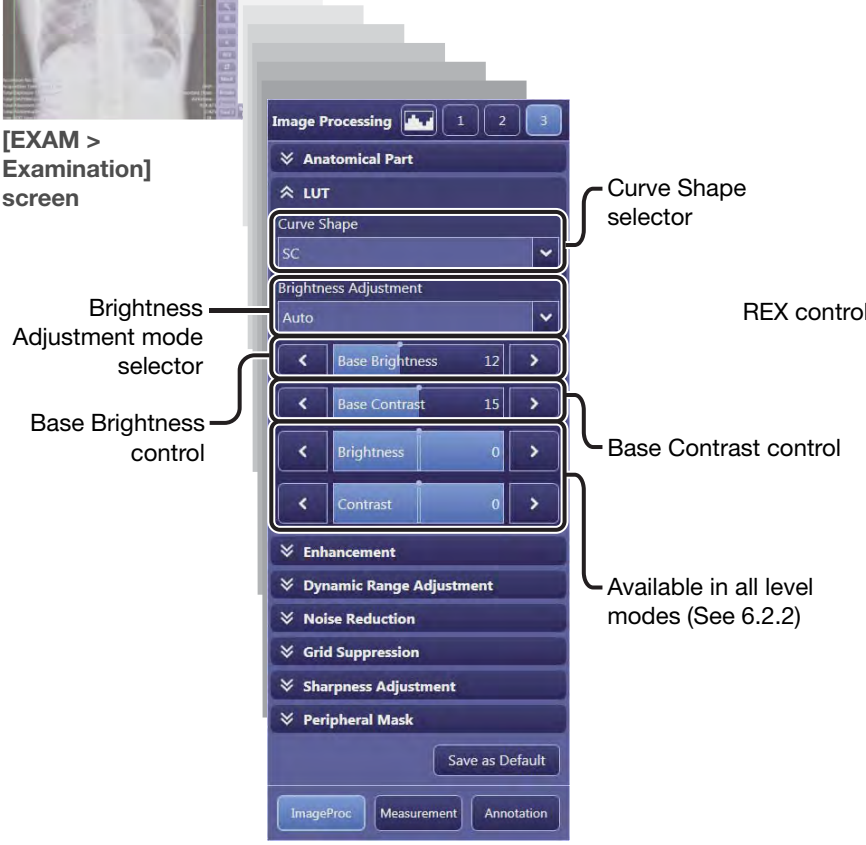
Click on the Anatomical Part and Direction drop-down arrow, and select an option from each list.

7.2.3 Adjusting the overall image tone (LUT control)

Selectors and controls other than the Brightness and Contrast control are available only in level 3 mode.



[EXAM > Examination] screen



LUT control (Auto mode for radiographic images)

LUT control (REX mode for radiographic images)

1 Select a preset Curve Shape.

Click on the Curve Shape drop-down arrow, and select an option from the list.

SA: This s-shaped curve has characteristics of standard radiographic films.

SB: This s-shaped curve enhances the contrast in bright regions compared to SA.

SC: This s-shaped curve enhances the contrast in dark regions compared to SA.

LN: This linear shaped LUT applies uniform contrast throughout all brightnesses.

2 Select Brightness Adjustment mode.

Click on the Brightness Adjustment drop-down arrow, and select a mode from the list.

Auto: Mode for automatic tone curve adjustment, for uniform brightness in the region of examination regardless of X-ray dose

REX: Mode for tone curve adjustment to change brightness of the region of examination based on X-ray dose

When the REX option is selected

Click the REX control text box and type a value. [+] and [-] can be used for the value specification.
The higher the value, the brighter the image.
The lower the value, the darker the image.

3 Adjust the Base Brightness.

Rotate the scroll wheel on the mouse or click the arrows of the Base Brightness control.
To increase, move the slider to the right.
To decrease, move the slider to the left.

NOTE: These adjustments are not available when the REX option is selected for Brightness Adjustment mode (see 7.2.3).

NOTE: When adjusting images where negative/positive inversion is applied, the moving directions of the Base Brightness control are reversed.

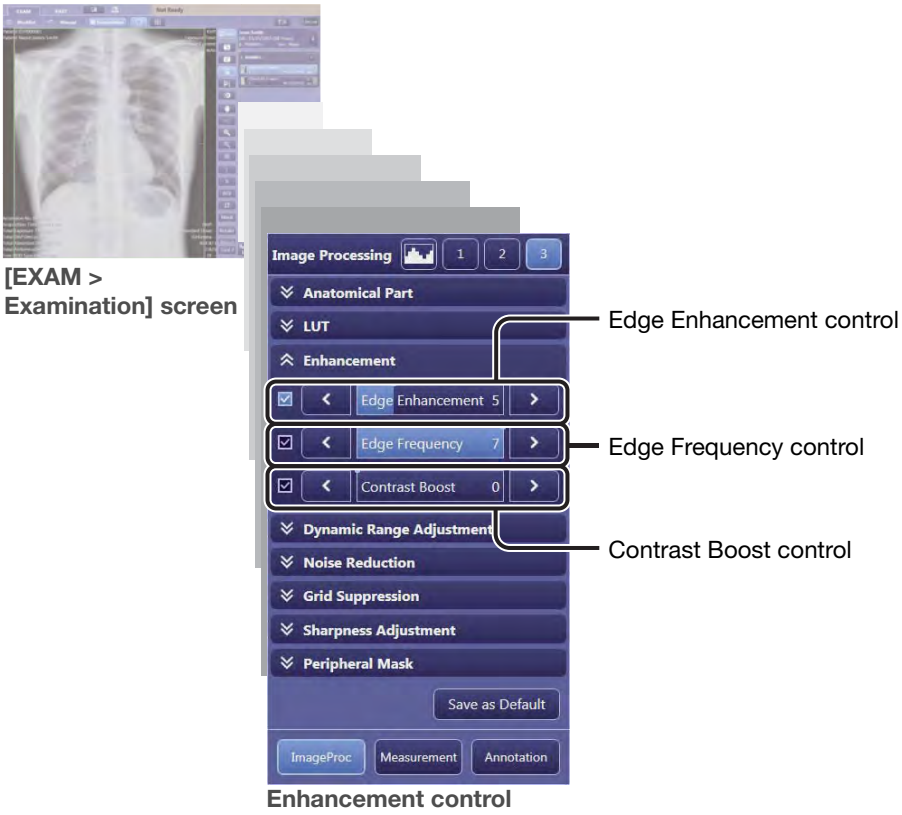
4 Adjust the Base Contrast.

Rotate the scroll wheel on the mouse or click the arrows of the Base Contrast control.
To increase, move the slider to the right.
To decrease, move the slider to the left.

NOTE: The value of Base Brightness and Base Contrast are used as a reference value for the Brightness control and Contrast control (see 6.2.2).

7.2.4 Enhancing contrast for anatomical part shape definition (Enhancement control)

This control is available only in level 2 and 3 modes, and it is necessary that Auto mode is selected for the LUT control.



[EXAM > Examination] screen

Enhancement control

1 Adjust the amount of enhancement.

Select the Edge Enhancement check box to enable this control, and then rotate the scroll wheel on the mouse or click the arrows.
To increase, move the slider to the right.
To decrease, move the slider to the left.

To disable edge enhancement control mode and cancel the effect

Clear the Edge Enhancement check box. The on/off setting of the Edge Frequency and the Contrast Boost controls (see the following steps) are subject to that of the Edge Enhancement control.

2 Specify the frequency to be enhanced in the section rendered with higher spatial frequency.

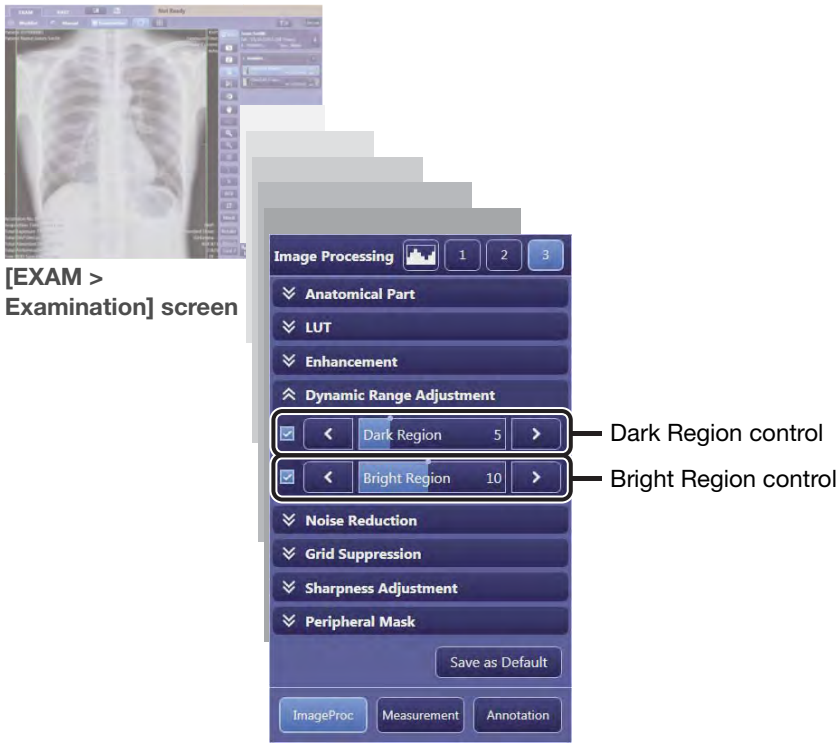
Rotate the scroll wheel on the mouse or click the arrows of the Edge Frequency control.
To increase spatial frequency, move the slider to the right. (Applicable for vessel and trabecula imaging)
To decrease spatial frequency, move the slider to the left. (Applicable for organ and bone imaging)

3 Adjust the amount of enhancement applied to the section rendered with lower spatial frequency.

Rotate the scroll wheel on the mouse or click the arrows of the Contrast Boost control.
To increase, move the slider to the right. (Applicable for trunk imaging)
To decrease, move the slider to the left. (Applicable for extremity and cephalic imaging)

7.2.5 Expanding or narrowing the dynamic range (Dynamic Range Adjustment control)

This control is available only in level 2 and 3 modes, and it is necessary that Auto mode is selected for the LUT control.



[EXAM > Examination] screen

Dynamic Range Adjustment control

Continued

1 Adjust the dynamic range in the dark region.

Select the Dark Region check box to enable this control, and then rotate the scroll wheel on the mouse or click the arrows.
To narrow, move the slider to the right.
To expand, move the slider to the left.

NOTE: When adjusting images where negative/positive inversion is applied, the operation directions of the Dark Region control are reversed. The same goes for step 2.

To disable dark region control mode and cancel the effect

Clear the Dark Region check box.

2 Adjust the dynamic range in the bright region.

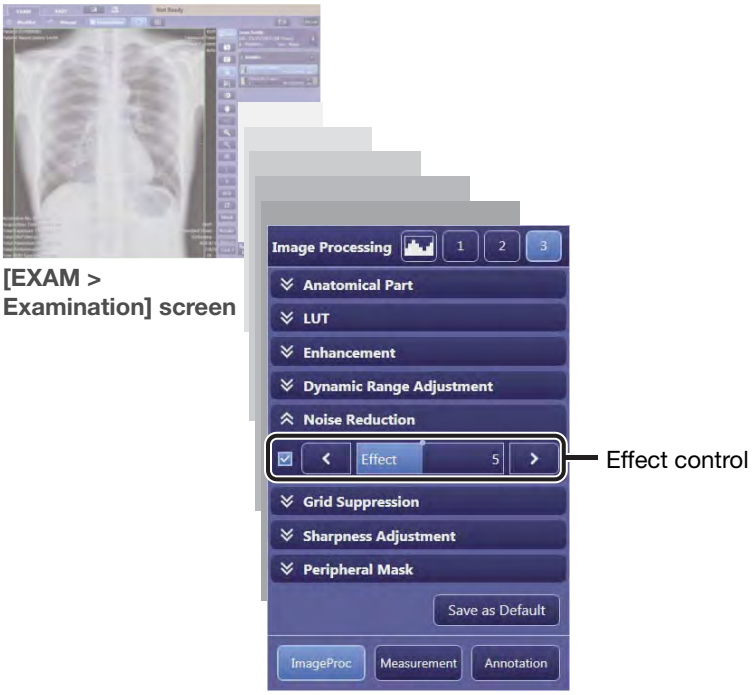
Select the Bright Region check box to enable this control, and then rotate the scroll wheel on the mouse or click the arrows.
To narrow, move the slider to the right.
To expand, move the slider to the left.

To disable bright region control mode and cancel the effect

Clear the Bright Region check box.

7.2.6 Reducing noise in images (Noise Reduction control)

This control is available only in level 2 and 3 modes, and it is necessary that Auto mode is selected for the LUT control.



[EXAM > Examination] screen

Noise Reduction control

1 Adjust the power of noise reduction.

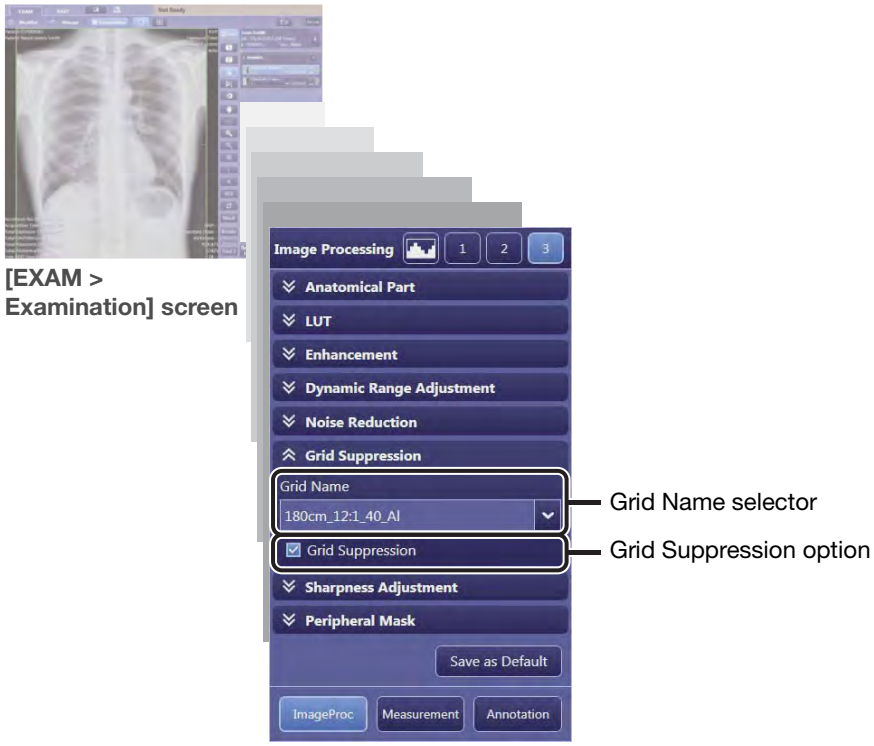
Select the Effect check box to enable this control, and then rotate the scroll wheel on the mouse or click the arrows.
To increase, move the slider to the right (Graininess will increase, however, the afterimage from moving subjects will be emphasized).
To decrease, move the slider to the left.

To disable noise reduction control mode and cancel the effect

Clear the Effect check box.

7.2.7 Reducing grid lines (Grid Suppression control)

This control is available only in level 3 mode.



[EXAM > Examination] screen

Grid Suppression control

1 Enable grid line suppression mode.

Select the Grid Suppression check box.

Grid Name selector

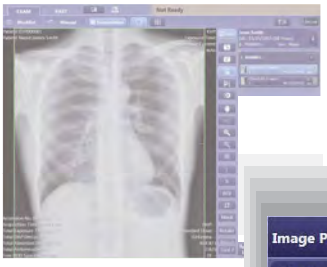
When the grid in use is different from the one specified for the current protocol, select the name of the grid in use from the drop-down list. Also refer to 3.4.1 in the Setup Guide for details on the Protocol Workspace Settings option.

To disable grid line suppression mode and cancel the effect

Clear the Grid Suppression check box. Some details of the image may be restored.

7.2.8 Adjusting the image sharpness (Sharpness Adjustment control)

This control is available only in level 3.
This control increases the sharpness of an entire image for an effective diagnosis.



[EXAM > Examination] screen

Effect control

Sharpness Adjustment control

1 Adjust the sharpness of the image.

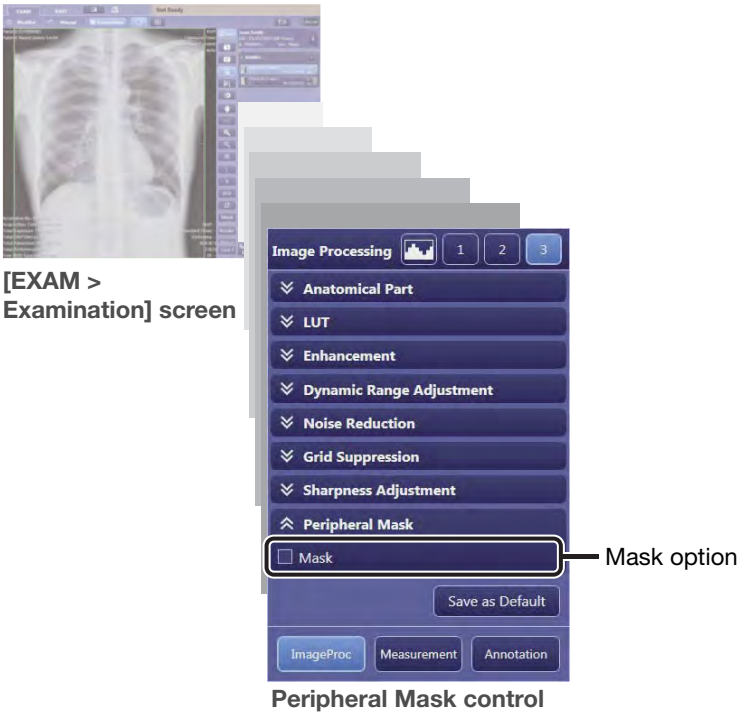
Select the Effect check box, and then rotate the scroll wheel on the mouse or click the arrows.
To increase sharpness, move the slider to the right.

To disable sharpness adjustment control mode and cancel the effect

Clear the Effect check box.

7.2.9 Masking the area outside of the irradiation field (Peripheral Mask control)

This control is available only in level 3 mode.
The setting of this option will be the default for the current protocol, and will be applied to images in the [EXAM > Examination] screen immediately after every exposure.
[Mask] in the toolbar can temporarily switch the setting as well (see 6.1.8).



[EXAM > Examination] screen

Peripheral Mask control

1 Enable the mask processing.

Select the Mask check box.

To disable peripheral mask processing

Clear the Mask check box.

NOTE: Even if this setting is changed after exposure, the change does not affect the captured image.

8 Stitching images (Long-length imaging)

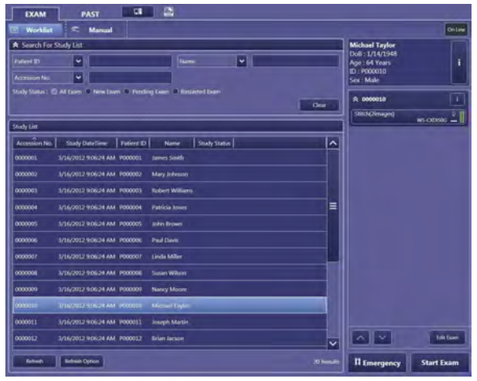
8.1 What is long-length imaging?

8.2 Capturing and stitching images

8.3 Realigning, modifying, and stitching partial images

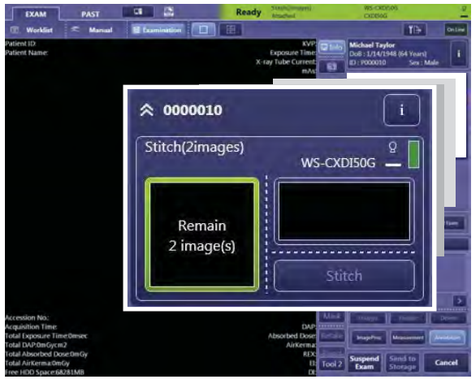
This chapter explains how to create a long-length image that shows the entire spine or the entire lower extremities (full spine or full leg) in a single image by stitching together two or more original partial images. Automatic image alignment and other manual adjustment features are also explained.

Workflow

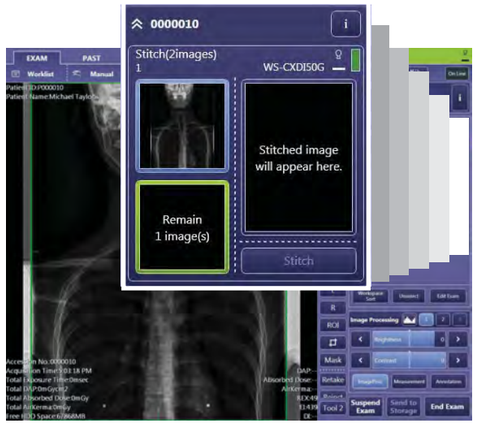


[EXAM > Worklist] screen

8.2 Capturing and stitching images



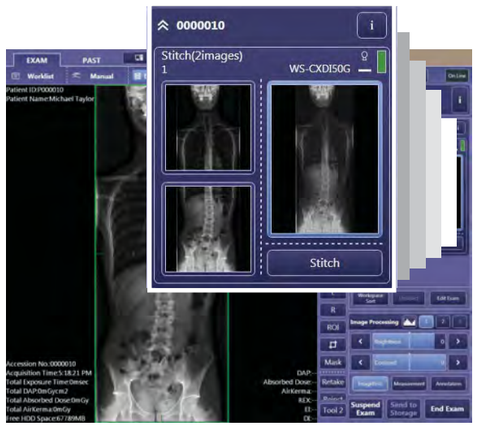
[EXAM > Examination] screen
(before capturing an image)



[EXAM > Examination] screen
(after capturing the first image)

Stitch Screen

8.3.1 Aligning partial images



[EXAM > Examination] screen
(after stitching images)

[PAST > View] screen

8.3.2 Modifying long-length images in the [PAST > View] screen

Image arrangement screen

Arranging and printing images automatically (see 7.1.2)

8.1 What is long-length imaging?

The long-length imaging feature generates image such as full spine and full leg images. These images are used to diagnose scoliosis or knee osteoarthritis - genu varum and genu valgum, and to measure the Cobb angle or the angle that the upper and lower legs make.
The Software automatically aligns captured partial images to stitch and generate a long-length image, while fine adjustments can be made using the manual controls.
As an example, a diagnosis of scoliosis is used in the following explanations.

NOTE: The long-length imaging feature accommodates only X-ray generators whose X-ray tubes rotate or tilt for serial radiography. If the detector and the X-ray tube move along parallel paths during an examination, the quality of the created image may deteriorate, resulting in the necessity of an additional examination.

NOTE: Be sure to capture images from top to bottom or bottom to top (keeping the same direction during an examination), with each image in portrait orientation. This examination can be performed for a patient in the recumbent or upright position.

NOTE: Be sure to use 3 to 5 mm diameter small metal balls as stitching markers. Markers other than the specified ones cannot be detected in long-length imaging.

Stitch type protocol

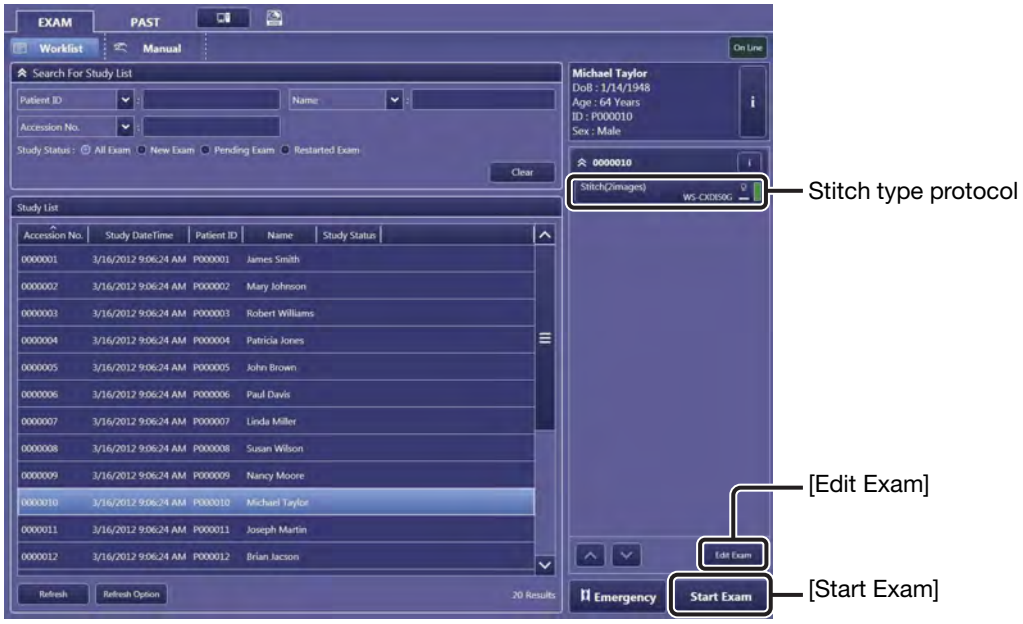
A protocol in which long-length images can be generated by stitching captured partial images. Up to four partial images can be stitched for each examination.

8.2 Capturing and stitching images

A review of chapters 3 and 4 for details on DX protocol selection and examination procedures is recommended to better understand the long-length imaging workflow using the stitch type protocol.
When the system is not linked to a RIS/HIS network, be sure to manually create a necessary study order (see 3.3) to start an examination.

NOTE: This section explains an examination method that uses stitch markers for image alignment. For details, refer to 2.3.1 in the Setup Guide.

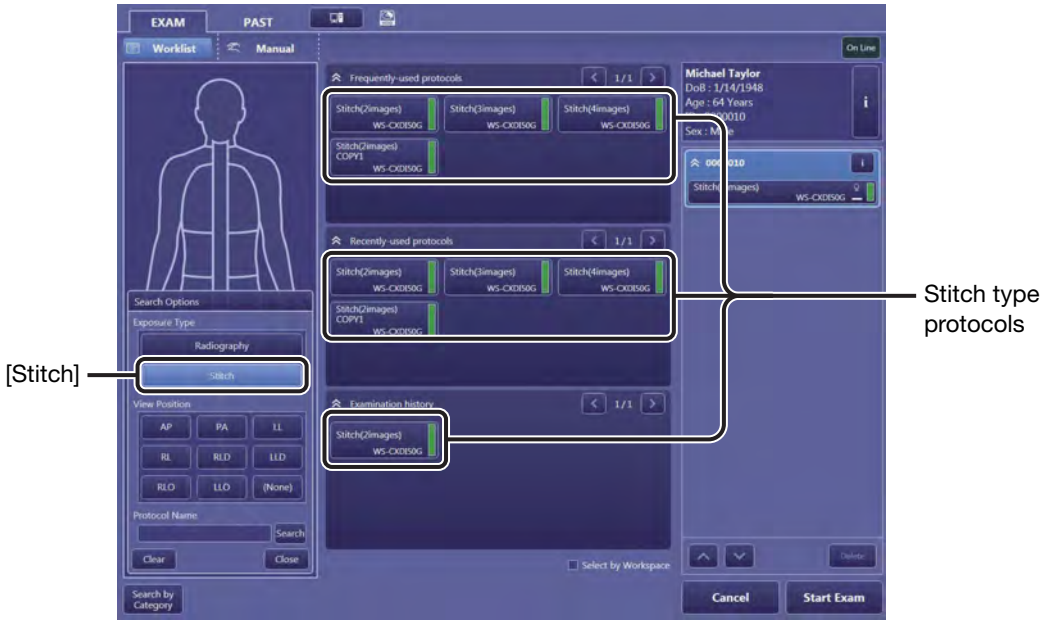
1 Select a target study order that includes a stitch type protocol.



[EXAM > Worklist] screen

To add a stitch type protocol to the current study order

Click [Edit Exam] on the [EXAM > Worklist] screen to show the Edit Exam screen, and then click the target stitch type protocol. For details on the Edit Exam screen, see 3.1.5 through 3.2.2.



Edit Exam screen

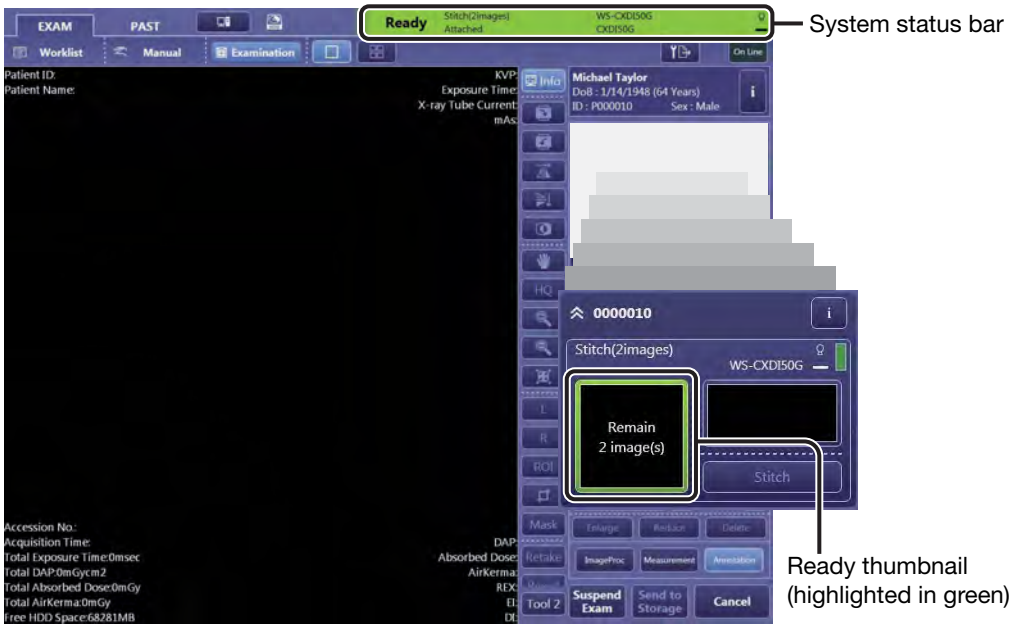
Continued

2 Start the examination.

Click [Start Exam].

3 Select the target stitch type protocol.

If necessary, click the incomplete target protocol and confirm that the **Waiting...** indicator changes to **Ready** in the system status bar, and that a ready thumbnail appears in the target protocol.



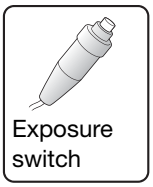
NOTE: If the protocol does not automatically enter ready mode, click to select the target protocol.

NOTE: Depending on the X-ray generator, the number of partial images less than the preset value can be specified from the X-ray generator side.

4 Arrange the patient in the correct posture.

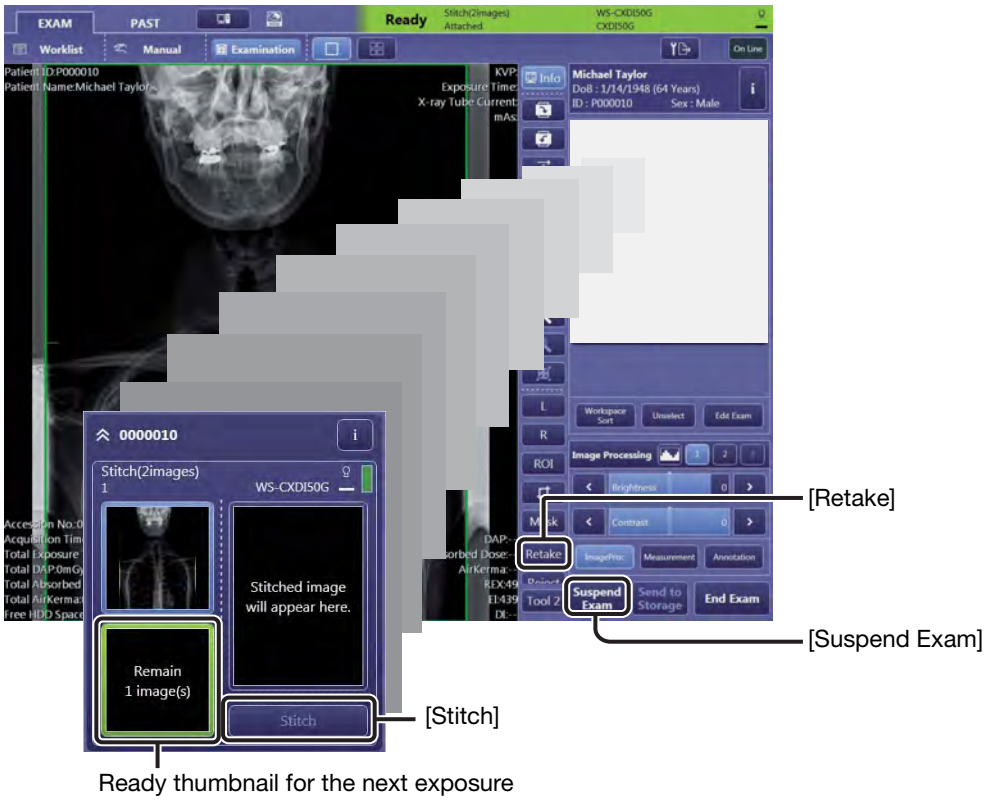
Arrange the patient so that the stitch markers are positioned appropriately within the irradiated field and instruct the patient not to move during the examination.

5 Perform exposure.



Press and release the exposure switch on the X-ray generator. The **Ready** indicator changes to **Capturing**, and then to **Not Ready** in the system status bar. After processing is complete, a preview image appears in the image view pane, and the next ready thumbnail is automatically highlighted.

NOTE: The number of partial images required for a long-length image is preset for each stitch type protocol within a range of two to four.



6 Continue image capturing.

Repeat steps 3 and 5 quickly until the required number of images are captured, instructing the patient to maintain the posture.

When the last partial image is captured (Automatic alignment feature)

Partial images are automatically aligned by making use of the detected stitch markers and the stitched image appears in the Stitch Screen (see step 7). If necessary, this feature can be canceled. For details, refer to 2.3.1 in the Setup Guide.

Continued

To stitch partial images manually

Even if some required partial images are left undone, already captured images can be stitched. Click [Stitch] after two or more images are captured. Images are aligned by making use of the detected stitch markers and the stitched image appears in the Stitch Screen.

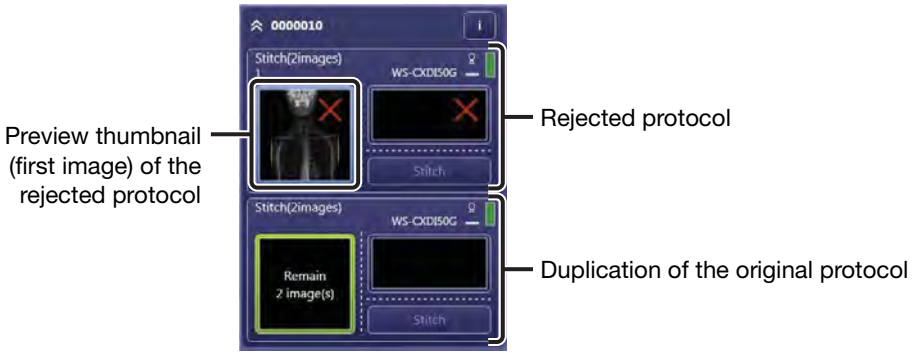
NOTE: If [Stitch] is clicked before capturing all the necessary partial images, further image capturing is not available.

To recapture partial images

Click [Retake]. A duplication of the original protocol appears next to the rejected protocol, of which the preview thumbnails are crossed out (see 4.4).

NOTE: The partial images of the rejected protocol are not carried over to the duplicated protocol.

When [Retake] is clicked after the first capture



To reject partial images

Click [Reject]. The preview thumbnails of the rejected protocol are crossed out (see 4.5).

NOTE: Even if the rejected protocol is restored, the partial images of the rejected protocol are not carried over to the restored protocol.

To suspend an examination

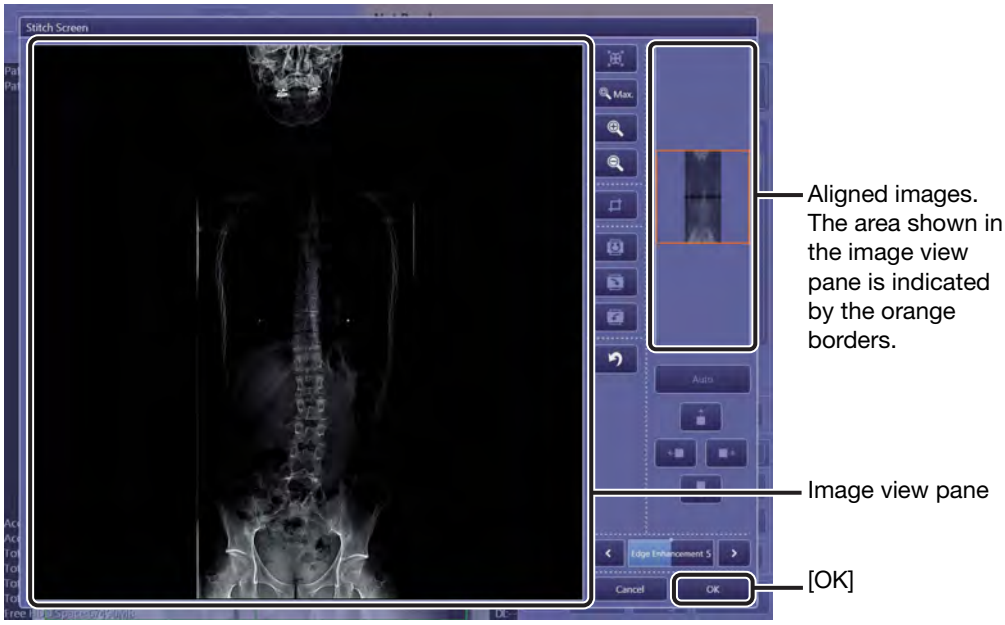
Be sure to capture all the necessary partial images, and then click [Suspend Exam] (see 4.6). The [EXAM > Examination] screen changes to the [EXAM > Worklist] screen.
After suspending the examination, partial images can be stitched (proceed to step 7), if two or more images have already been captured.

NOTE: Further image capturing is not available using the suspended protocol.

NOTE: Depending on the X-ray generator, if two or more images have already been captured, the examination can be ended from the X-ray generator.

7 Check the automatically aligned images.

Check that two pairs of stitch markers on the overlapped images are fully matched in the Stitch Screen (i.e. a pair of stitch markers appears). For details, see 8.3.1.


Stitch Screen
Aligned images. The area shown in the image view pane is indicated by the orange borders.
Image view pane
[OK]
Cancel
OK

Stitch Screen

NOTE: If stitch marker detection fails, the misaligned image appears accompanied by an error message. In such cases, manually align the partial images. For details on manual alignment, see 8.3.1.

To stitch images after the examination is suspended

Select the target suspended study from the [EXAM > Worklist] screen (or [EXAM > Pending List] screen if HIS/RIS interoperability services are not used), and then click [Start Exam]. Click the target stitch type protocol in the [EXAM > Examination] screen, and then click [Stitch]. For details, see 8.3.1.

Continued

8 Continue the examination.

Click [OK] in the Stitch Screen. The [EXAM > Examination] screen returns and a stitched image preview thumbnail appears in the protocol.
If any incomplete protocols remain, repeat steps 3 through 7.

To post-process long-length images

For details, see “6 Post-Processing Images.” See also 6.3.3 for the Cobb angle measurement and 6.3.4 for the height difference measurement.

9 Finish the examination.

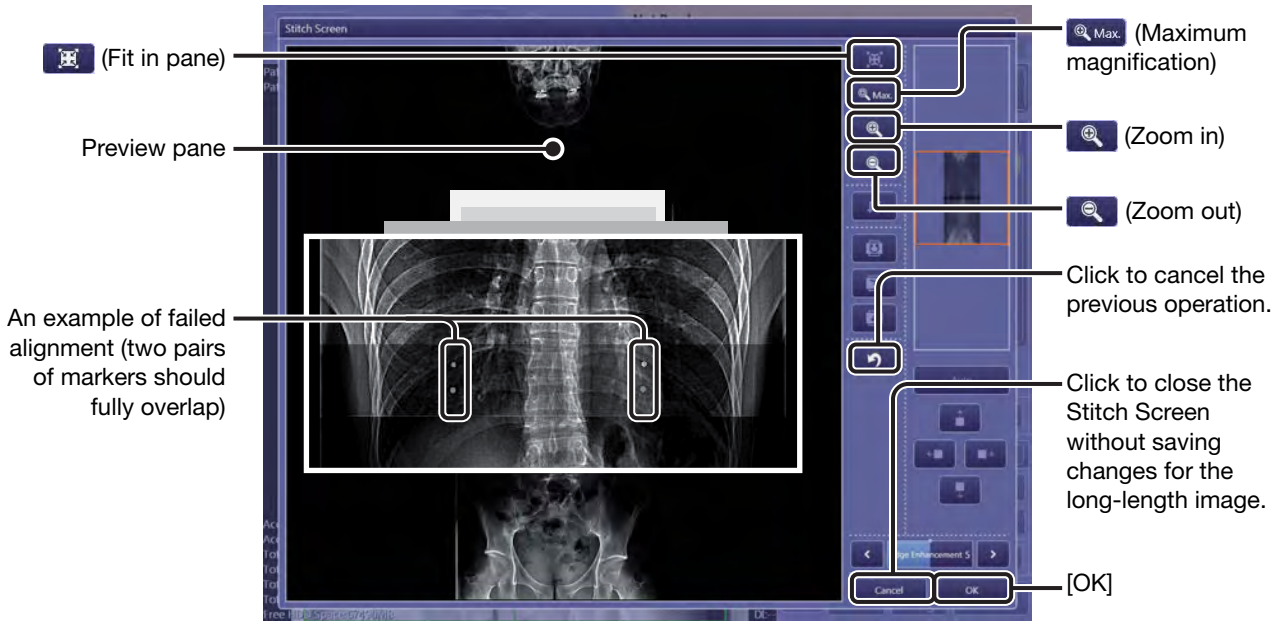
Click [End Exam]. The image data will be transferred to a preset destination such as a printer (refer to 2.6 in the Setup Guide).

8.3 Realigning, modifying, and stitching partial images

The following procedures are performed in the dedicated Stitch Screen after both partial images are captured and they are stitched.

8.3.1 Aligning partial images

When the last partial image is captured, the Stitch Screen automatically appears so that the created long-length image can be checked (see step 7 in 8.2).
If partial image alignment failed, realign the images manually. Cropping and rotating features are available for perfect alignment.


(Fit in pane)
Preview pane
An example of failed alignment (two pairs of markers should fully overlap)
Max. (Maximum magnification)
(Zoom in)
(Zoom out)
Click to cancel the previous operation.
Click to close the Stitch Screen without saving changes for the long-length image.
[OK]
Stitch Screen
Cancel
OK

Stitch Screen

1 Check the automatically aligned images.

Check that the two pairs of stitch markers on the overlapped images are fully matched.

To scale the image in the preview pane

Click Max. or , and then click on the area where close observation is required. Click , and then click on the preview pane to zoom out.
Click to fit the image to the preview pane.

2 Select a target partial image for an arrangement.

Click a target partial image. Small squares appear at the image corners.

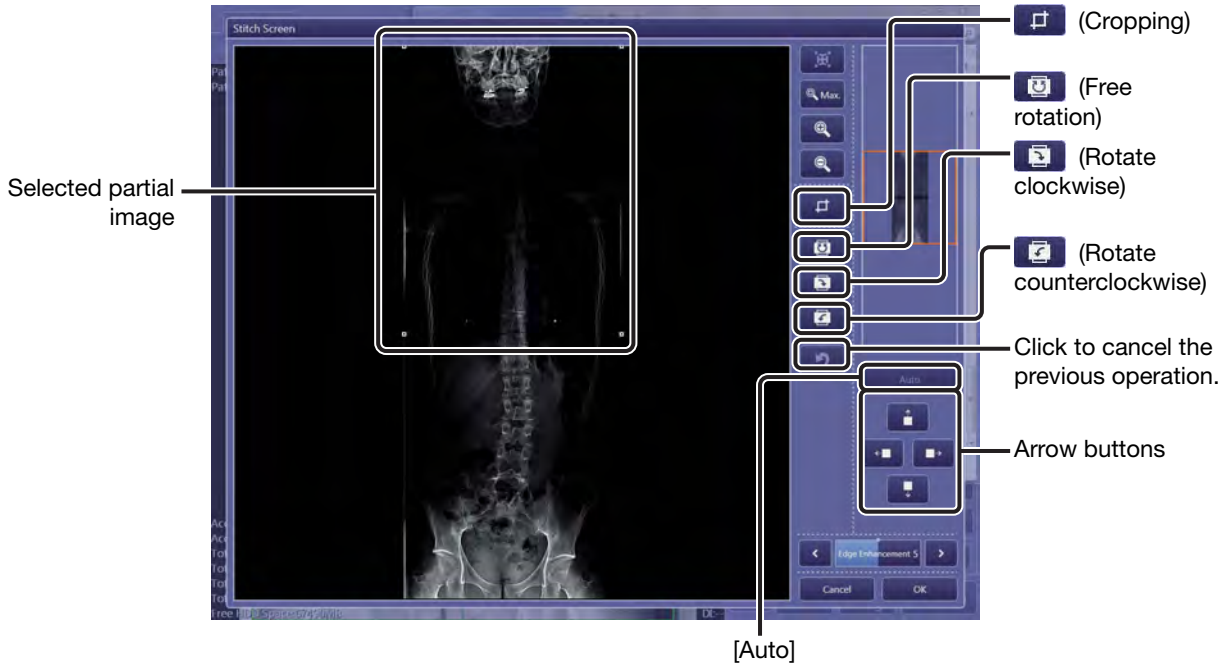
Continued

To select two or more partial images

Shift-click partial images one by one. To clear a selected image, shift-click it again.

To clear all image selection

Click on a blank space in the preview pane.



3 Arrange the selected partial image.

Drag a partial image to fully overlap the stitch markers.

To finely adjust the position

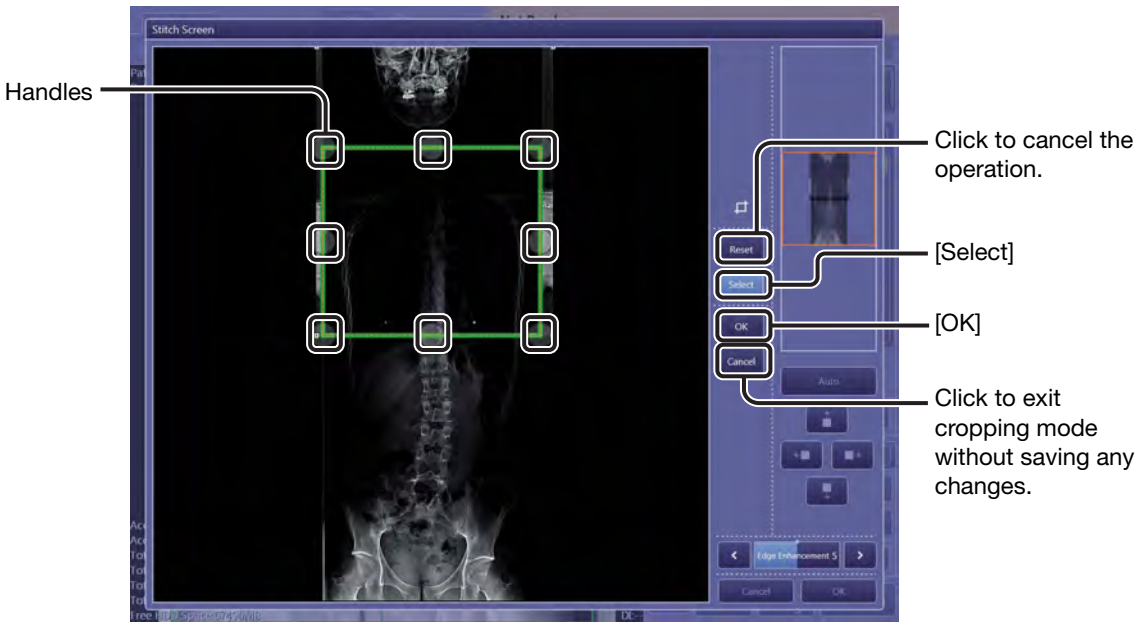
While the image is selected, click the arrow buttons. One click of the button moves the image one pixel in the same direction as the arrow indicated on the button.

To redo automatic alignment

Click [Auto].

To crop a partial image

Click the target partial image to select it, and then click . The image edges change to green.
Click [Select] to show the handles on the edges, drag the handle to crop the image, and then click [OK] to set the change.



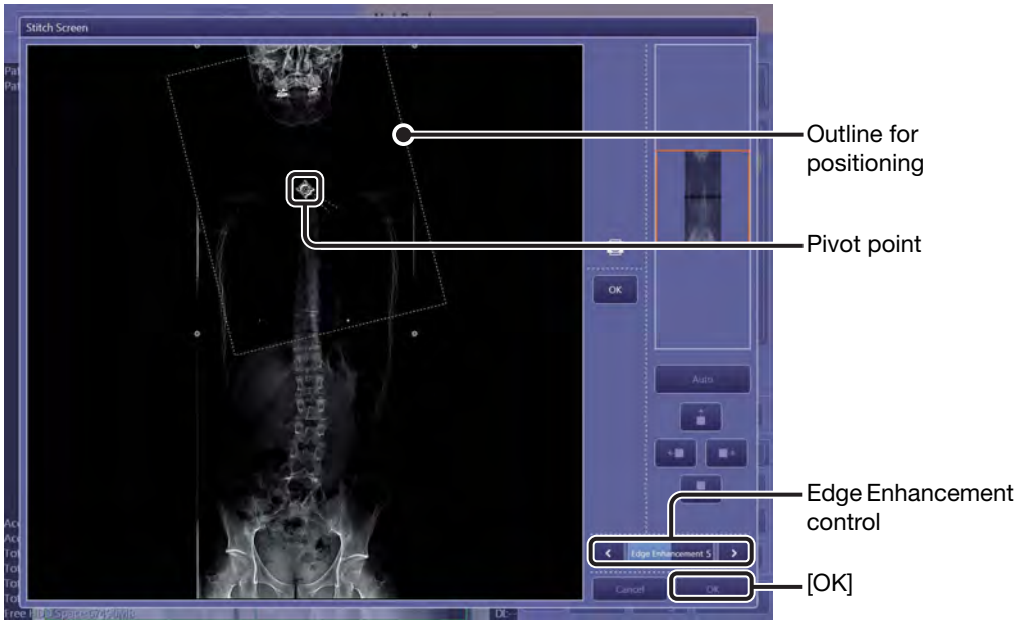
To rotate a partial image 90 degrees

Click the target partial image, and then click or . Each time the buttons are clicked, the image rotates clockwise or counterclockwise 90 degrees.

Continued

To freely rotate a partial image

Click on the target partial image to select and click . Then click on the image to specify a pivot point, and then drag the image to rotate.



To enhance the edges of the object as an alignment aid

Rotate the mouse wheel on the Edge Enhancement control or click the arrow on the control.
To increase, move the slider to the right.
To decrease, move the slider to the left.

NOTE: The Edge Enhancement effect on the Stitch Screen is temporal and it is not saved.

4 Save the changes to the image.

Click [OK] to close the Stitch Screen.

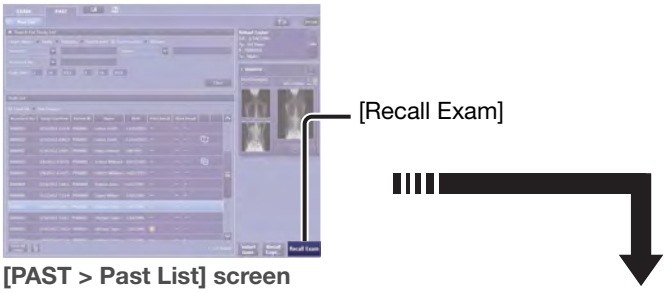
NOTE: When [Cancel] is clicked to close the Stitch Screen, images cannot be stitched.

8.3.2 Modifying long-length images in the [PAST > View] screen

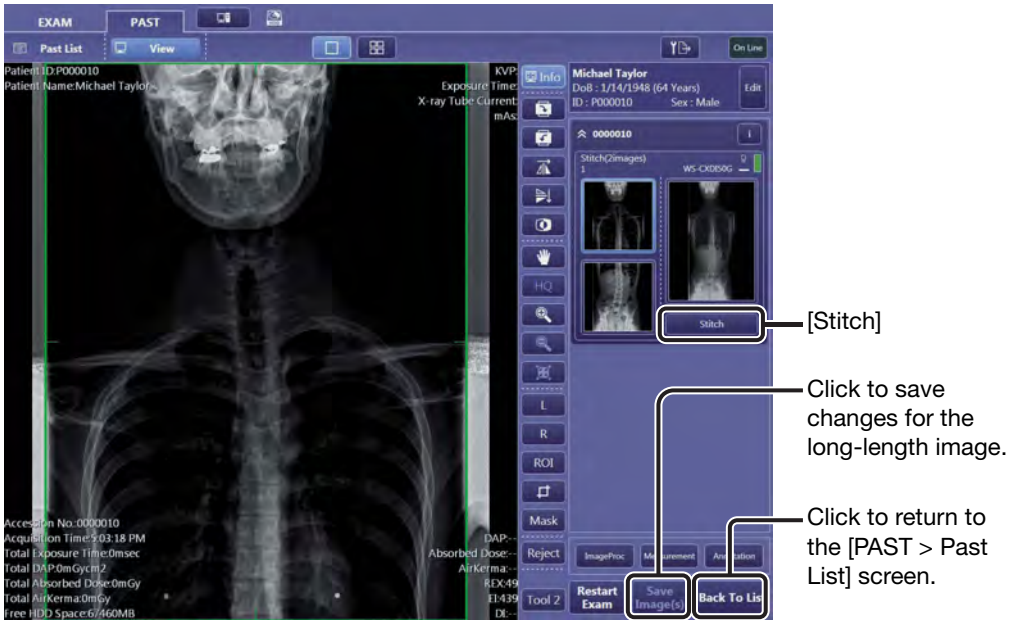
Partial images for an already stitched long-length image can be aligned again on the Stitch Screen to create a new image.

1 Show a long-length image.

See 5.2 for details on operation.



[PAST > Past List] screen

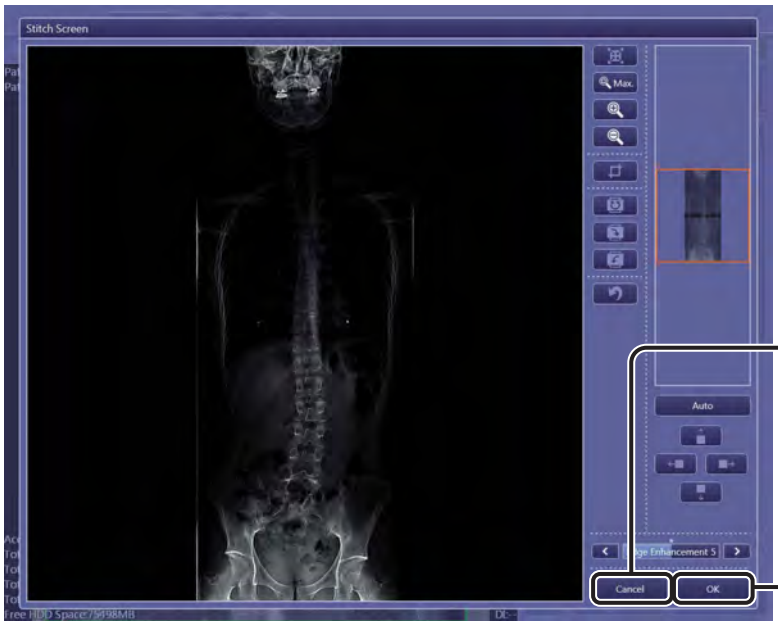


[PAST > View] screen

Continued

2 Modify the target long-length image on the Stitch Screen.

Click [Stitch] in the target protocol.
For details on operations on the screen, see 8.3.1.



When two or more complete protocols are shown in the study information pane

Click the preview thumbnail of the target protocol, and then click [Stitch].

3 Close the Stitch Screen.

Click [OK] to save the changes for the stitched image.

9 Troubleshooting Remedies

9.1 Confirming details of the problem

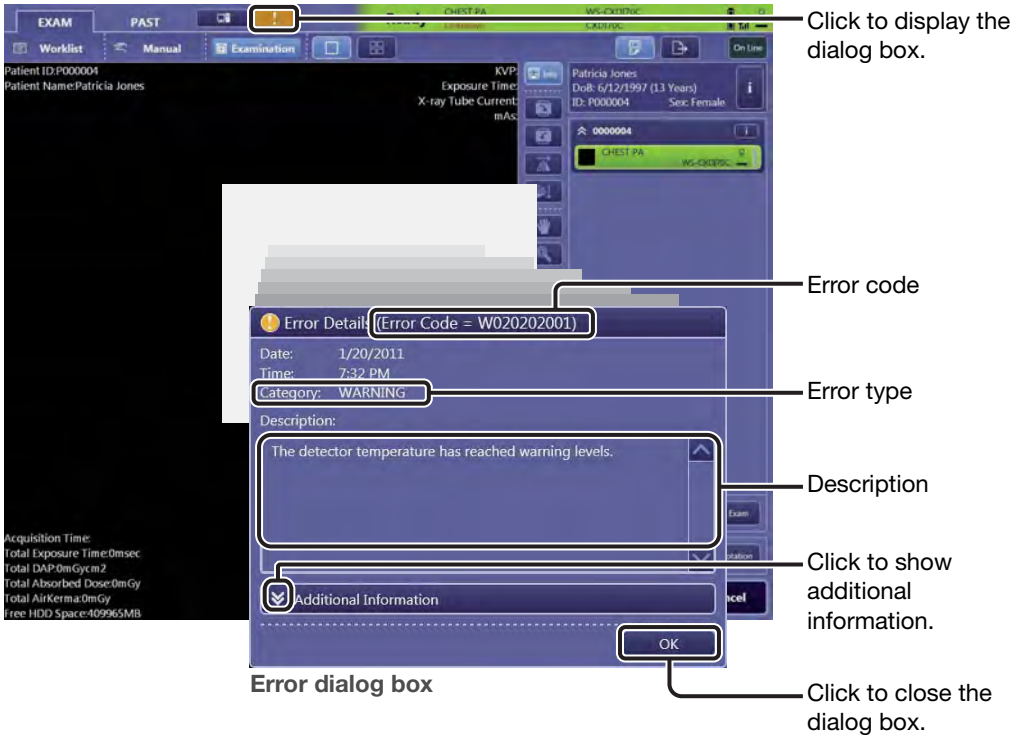
If the error persists

If you encounter an error that is not described in this chapter, or if an error persists after trying the measures described in this chapter, contact your service engineer.
Before making your inquiry, make a note of the error type, error code, and other details referring to the error dialog described below or the Log Viewer screen (refer to 3.2 in the Setup Guide).

9.1 Confirming details of the problem

If an error occurs, (error button) or (warning button) will appear at the top of the screen.
If appears, click it to show the error dialog box. Search for a solution in the error and warning lists by error type, error code, and description.

NOTE: Usually, appears accompanied with an error dialog box, except when an examination is in progress. If only appears, click it to show the error dialog box after the examination is ended.



Error dialog box

Button	Error type
	FATAL (see 9.1.1)
	ERROR (see 9.1.2)
	WARNING (see 9.1.3)

9.1.1 Fatal error list

F030100005

Required COM+ servers are not installed. Contact a service engineer.

→ Inform a service engineer of the error code.
Click [OK] to close the dialog box, and then shut down the image-capture computer (see 2.2).

F03020200E

Memory allocation failed. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

F03020201B

Failed to upload calibration data. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

F03020201C

Failed to transfer the image data. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

F03020201F

A detector error occurred. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

F030202021

The control software/controller is not compatible with the current detector firmware. Update the control software/controller firmware.

F030202022

The Jumbo packet settings are incorrect or a network card not compatible with Jumbo packet is used. Contact a service engineer.

F030202023

The detector firmware may have been updated after registration of the detector. Register the detector again.

→ Inform a service engineer of the error code.
Click [OK] to close the dialog box, and then shut down the image-capture computer (see 2.2).

Continued

F03020FFFF

An internal error occurred. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

F040100066

The IP addresses for the wireless and wired configurations have been reversed. Contact a service engineer.

→ Click [OK] to close the dialog box and inform a service engineer of the error code.

F040300048

The control software/controller is not compatible with the current detector firmware. Update the control software/controller firmware.

F040300049

The detector firmware may have been updated after registration of the detector. Register the detector again.

F040300050

The Jumbo packet settings are incorrect or a network card not compatible with Jumbo packet is used. Contact a service engineer.

→ Inform a service engineer of the error code.
Click [OK] to close the dialog box, and then shut down the image-capture computer (see 2.2).

F040300051

The IP addresses for the wireless and wired configurations have been reversed. Contact a service engineer.

→ Click [OK] to close the dialog box and inform a service engineer of the error code.

F040400003

Failed to acquire the system settings. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

F040700100

The system memory settings are invalid. Check the setting information.

→ Inform a service engineer of the error code.
Click [OK] to close the dialog box, and then shut down the image-capture computer (see 2.2).

F050502009

A detector communication error occurred. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

9.1.2 Error list

E020201003

Detector cannot be used because the battery has lost its charge. Charge the detector battery.

→ Click [OK] to close the dialog box and charge the battery of the wireless detector. Or, if the optional wired connection is available, switch to the connection. For the wireless detector, refer to the Digital Radiography CXDI series User's Manual.

E020201004

Unexpected error has occurred. Gamma adjustment is not available. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
Then perform gamma adjustment (refer to 2.3.2 in the Setup Guide).
If this error occurs again, inform a service engineer of the error code.

E020201005

Failed to connect to the barcode reader. Check that the barcode reader cable is connected properly and restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and check that the barcode reader is connected properly. Then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

E020201006

Cannot start specified examination. Return to the Exam screen and retry the failed examination.

→ Click [OK] to close the dialog box and retry the previous operation on the [EXAM > Worklist] screen or the [EXAM > Manual] screen.
If this error occurs again, inform a service engineer of the error code.

E020201007

A detector communication error occurred. Please retake this protocol. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box and retry the examination for the same protocol.
If this error occurs again, inform a service engineer of the error code.

E020201008

The detector temperature has reached dangerous levels. Images cannot be captured until the temperature has dropped.

→ Suspend the examination (see 4.6) and wait until the temperature decreases. Then restart the suspended study order.

E020201009

Failed to start up the OverwrapSoftware. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Inform a service engineer of the error code.
Click [OK] to close the dialog box, and then shut down the image-capture computer (see 2.2).

E030100001

No calibration data. Perform calibration in the QC Tool.

→ Click [OK] to close the dialog box, and then calibrate the detector (refer to 3.5.1 in the Setup Guide).

E030201002

Periodic noise detected in acquisition data. The grid must be removed in calibration.

→ Click [OK] to close the dialog box. Remove the grid from the detector, and then calibrate the detector (refer to 3.5.1 in the Setup Guide).

E030201003

The cooling unit has been attached or detached. Processing was halted.

→ Click [OK] to close the dialog box and retry the examination.
If this error occurs again, inform a service engineer of the error code.

E030201005
E030201006

Generator is disconnected. Enable the generator connection with [Connect GEN] on the system setup screen. Restart the system if the generator connection has failed. If the problem is not resolved after restarting, contact a service engineer.

→ Click [Connect GEN] in the system setup screen (refer to 2.1.1 in the Setup Guide). If the connection with the X-ray generator device continues to be disabled, restart the image-capture computer and the Software (see 2.2).

Continued

E030201007

Failed to enter the image capture ready condition. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box. Exit the QC Tool mode and restart the image-capture computer and the Software (see 2.2). If this error occurs again, inform a service engineer of the error code.

E030201008

Detector cannot be used because the battery has lost its charge. Processing was halted.

→ Click [OK] to close the dialog box and suspend the examination (see 4.6). Then charge the battery of the wireless detector and restart the suspended study order. For the wireless detector, refer to the Digital Radiography CXDI series User's Manual.

E030201009

The detector temperature has reached dangerous levels. Processing was halted.

→ Suspend the examination (see 4.6) and wait until the temperature decreases. Then restart the suspended study order.

E030201010

No battery is attached to the detector. Attach the battery.

→ Click [OK] to close the dialog box and attach the battery pack to the detector.

E040100008

An invalid detector has been specified. Check the setting information. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box and retry the previous operation. If this error occurs again, inform a service engineer of the error code.

E040100023

Generator communication failed. Enable the generator connection with [Connect GEN] on the system setup screen. Restart the system if the generator connection has failed.

→ Click [OK] to close the dialog box, and then click [Connect GEN] (refer to 2.1.1 in the Setup Guide). If the generator cannot be connected, restart the image-capture computer and the Software (see 2.2). If this error occurs again, inform a service engineer of the error code.

E040100053

The detector issued an error. Try again. If the problem is not resolved, contact a service engineer.

→ When using a wireless detector, show Additional Information to check the Error Code number (detector error code) to be shown and then click [OK] to close the dialog box. Refer to the “Troubleshooting” in the “User’s Manual” of the Digital Radiography and check the operation corresponding to the Error Code number. Perform the operation and retry the examination.
If this error occurs again, inform a service engineer of the error code.
When using a detector other than wireless detector, click [OK] to close the dialog box and retry the previous operation. If this error occurs again, show Additional Information to check the Error Code number (detector error code) to be shown and then inform a service engineer of the error code.

E040100054

The detector issued a fatal error. Restart the system. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2). (However, users can continue examinations without restarting by switching to another available detector.) If this error occurs again, inform a service engineer of the error code.

E040100056

Generator is disconnected. Enable the generator connection with [Connect GEN] on the system setup screen. Restart the system if the generator connection has failed. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, and then click [Connect GEN] (refer to 2.1.1 in the Setup Guide). If the generator cannot be connected, restart the image-capture computer and the Software (see 2.2). If this error occurs again, inform a service engineer of the error code.

E040500003

Exceeded the maximum number of the study order acquisitions.
If you want to change the number of maximum study order acquisitions, contact a service engineer.

→ Click [OK] to close the dialog box.
When the target study orders have been acquired, start the examination. Otherwise, acquire the target order by narrowing down the study orders using [Refresh Option] (see 3.1.1).
To change the maximum number of orders that can be listed, contact a service engineer.

Continued

E040500004

Invalid studies contained in the acquired data are not displayed. Check the data identical to the acquired ones on the RIS database, etc.

→ Show Additional Information to check the number of the invalid orders and then click [OK] to close the dialog box.
Check the study orders that failed to be shown. The Patient ID and Study Instance UID of the orders may be invalid. In that case, correct the study order information and retry the acquisition (see 3.1.1). If this error occurs again, inform a service engineer of the error code.

E040500005

Invalid values in the received tag have been replaced with blanks. Check the data identical to the acquired ones on the RIS database, etc.

→ Show Additional Information to check the study orders that failed to be shown and then click [OK] to close the dialog box. Correct the study order information and retry the data acquisition (see 3.1.1). If this error occurs again, inform a service engineer of the error code.

E040500006

Received data includes characters that do not exist in the CXDI system's character set. The characters may not be displayed correctly. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box.
Supplementary Chinese characters contained in the acquired study order were replaced with "?."
Do not use the supplementary Chinese characters for study order creation on RIS database for this control software does not support these characters.

E040500008

A date entry before 1753 is included in the acquired Exam. Check the date.

→ Check the data information and retry a data entry.

E04050000C

Failed to read DICOMDIR file. Check the target disk and retry reading.

→ Click [OK] to close the dialog box. Check the removable disk and read the files again. If this error occurs again, files in the DICOMDIR directory may be corrupted. Check the original files.

E04050000D

A transmission error occurred. Locate the failed study in the [PAST > Past List] and retransmit the study.

→ Delete the data transfer error log from the Process Viewer (refer to 3.3 in the Setup Guide), and then resend the image from the [PAST > Past List] screen (see 7.1.5).

E04050000F

Failed to read DICOM file. Check the target disk and retry reading.

→ Click [OK] to close the dialog box. Check that there is no problem in the storage media and the target file exists in the destination directory, and then retry reading. Errors also occur when the file format does not comply with DICOM standard or log-in user has not been granted read access to the file.

E040500010

Failed to read DICOM file. Check the target disk and retry reading.

→ Click [OK] to close the dialog box. Ensure enough HDD's free space and retry reading.

E040501011

Cannot continue the processing because a file already exists at the specified storage destination. Check the setting information.

→ Click [OK] to close the dialog box. Delete all files in the folder designated as the storage, and then retry the previous operation. If the destination folder cannot be identified, consult the system administrator. If this error occurs again, inform a service engineer of the error code.

E040501012

Cannot continue the processing because access to the specified storage destination was denied. Check the setting information.

→ Click [OK] to close the dialog box, right-click the folder designated as the storage, select Property > Security tab, change the access privileges, and then retry the operation from the start. If the destination folder cannot be identified, consult the system administrator. If this error occurs again, inform a service engineer of the error code.

E040501013

Cannot continue the processing because there is not enough space at the specified storage destination. Check the setting information.

→ Change the destination folder. Or ensure enough HDD's free space and retry the operation.

Continued

E040501014

DICOM GSPS output was halted because the object image transfer was incomplete. Try again after object image transfer.

→ Click [OK] to close the dialog box.
Select the halted transfer task, and then click [Retry] on the process viewer to retry the task (refer to 3.3 in the Setup Guide).
If the above remedy does not work, try to reconfigure the Storage tab settings (refer to 2.6.1 in the Setup Guide), and manually try to transfer the image starting on the [PAST > View] screen (see 7.1.5).

E040501016

Data communication between the hospital network was interrupted during file transmission. Check the setting information.

→ Click [OK] to close the dialog box. After confirming that the destination server and the network are functioning normally, retry the operation. If this error occurs again, inform a service engineer of the error code.

E040501017

The CXDI system read an unsupported DICOMDIR file. Check the target disk and retry reading.

→ Use a disk that was made using the Software.

E040501018

A transmission error occurred. Try again. If the problem is not resolved, contact a service engineer.

→ Retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide). Or resend the image from the [PAST > Past List] screen (see 7.1.5). If this error occurs again, inform a service engineer of the error code.

E040502002-040502004
E04050200D-04050200F
E040502010-040502014

Association negotiation failed. There may be a problem in the settings of the system or that of the other communication party. Check the setting information.

E04050201B-04050201F
E040502020

Association was stopped. There may be a problem in the settings of the system or that of the other communication party. Check the setting information.

E040502021
E040502023
E040502058

Association negotiation failed. There may be a problem in the settings of the system or that of the other communication party. Check the setting information.

→ Click [OK] to close the dialog box and check the properties of Host Name, Port or Called AE Title in the Connection tab screens (refer to 2.6 in the Setup Guide).
Check that destination server and the network are functioning normally.
If the problem cannot be resolved, contact the system administrator. The problem may be resolved by checking the destination server or the DICOM conformance statement. If this error occurs again, inform a service engineer of the error code.

E040505001
E040505002
E040505004-040505009
E04050500B-040505014

An error occurred in DICOM communication. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box. Click [Refresh] to acquire the study orders (see 3.1.1).
The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E040505015

A response error occurred in DICOM communication. Check the destination modality or server, etc.

→ Click [OK] to close the dialog box, and then contact the system administrator.
The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E040505017

An error occurred in DICOM communication. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box. Click [Refresh] to acquire the study orders (see 3.1.1).
The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

Continued

E040505018

A response error occurred in DICOM communication. Check the destination modality or server, etc.

→ Click [OK] to close the dialog box, and then contact the system administrator. The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E04050501B

An error occurred in DICOM communication. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box. Click [Refresh] to acquire the study orders (see 3.1.1).
The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E04050501F

An error occurred in DICOM communication. Contact the system administrator.

E040505020

A response error occurred in DICOM communication. Check the destination modality or server, etc.

E040505027

An error occurred in the DICOM printer output. Contact the system administrator.

→ Click [OK] to close the dialog box, and then contact the system administrator. The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E040505028

An error occurred in the DICOM printer output. Try again later.

→ Click [OK] to close the dialog box, and retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide).
If the problem cannot be resolved, contact the system administrator. The problem may be resolved by checking the DICOM conformance statement. If this error occurs again, inform a service engineer of the error code.

E040505029
E04050502A
E04050502E

An error occurred in the DICOM printer output. Contact the system administrator.

→ Click [OK] to close the dialog box, and then contact the system administrator. The problem may be resolved by checking the destination server or the DICOM conformance statement.
If this error occurs again, inform a service engineer of the error code.

E04050502C
E04050502F

An error occurred in the DICOM printer output. Try again later.

→ Click [OK] to close the dialog box, and then retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide).
If the problem cannot be resolved, contact the system administrator. The problem may be resolved by checking the DICOM conformance statement. If this error occurs again, inform a service engineer of the error code.

E040506001

The transmission was interrupted as the CXDI system received a FAILURE status from the destination DICOM printer. Check the DICOM printer.

→ Check the DICOM printer. For details of Printer Status, refer to Annex C.13.9.1 in the DICOM standard Part3: Information Object Definitions or the DICOM conformance statement.

E040507001

DICOM StorageCommitment failed. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide). Or resend the image from the [PAST > View] or [PAST > Past List] screen (see 7.1.5).
If this error occurs again, inform a service engineer of the error code.

E040507002-040507005

DICOM StorageCommitment failed. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry sending the image from the [PAST > View] or [PAST > Past List] screen (see 7.1.5).
If this error occurs again, inform a service engineer of the error code.

Continued

E040507006

DICOM StorageCommitment failed. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide). Or resend the image from the [PAST > View] or [PAST > Past List] screen (see 7.1.5).
If this error occurs again, inform a service engineer of the error code.

E040507007

DICOM StorageCommitment failed. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide). Or resend the image from the [PAST > View] or [PAST > Past List] screen (see 7.1.5).
If this error occurs again, inform a service engineer of the error code.

E040600008

Failed to access the target disk. Check the disk drive and retry from the Process Viewer.

→ Check that the destination storage disk or device is functioning normally. Then, retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide).
If this error occurs again, inform a service engineer of the error code.

E040600009

The process was interrupted as there was not enough free disk space. Replace the disk with a new one and retry from the Process Viewer. If recording is in progress, wait until the process is completed and replace the disk.

→ Replace the current disk with one containing sufficient free space. Then, retry the data transfer from the Process Viewer (refer to 3.3 in the Setup Guide).

E04060000B

Cannot retry the process as an error occurred. Delete the failed process in the process viewer, locate the process in the [PAST > Past List], and then retransmit the process.

→ Delete the data transfer error log from the Process Viewer (refer to 3.3 in the Setup Guide). Then, resend the image from the [PAST > Past List] screen (see 7.1.5).

E04060000C

The system is attempting to transfer old study information created before data rebinding. Delete the corresponding process as it cannot be executed.

→ Delete the data transfer error log from the Process Viewer (refer to 3.3 in the Setup Guide). The image including old study information cannot be transferred as the rebinded image has been successfully transferred.

E040700006

Failed to load the image file. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry the previous operation.

E040800100

Cannot start the examination as an invalid protocol exists in the study. Delete the invalid protocol and retry the examination.

→ Click the suspended examination including the invalid protocol in [EXAM > Worklist] and then [Edit Exam] to delete it (see 3.1.5).

E040D0001F

Failed to free up the hard disk. If the problem is not resolved after restarting, contact a service engineer.

→ Deselect the Protect Image check box of the study order in the [PAST > Past List] (see 3.1.3). Select the transfer failed studies in the Process Viewer and click [Delete] or [Retry] (refer to 3.3 in the Setup Guide). If this error occurs again, inform a service engineer of the error code.

E040E01000

Image analysis processing failed. Adjust the image processing parameters manually.

→ If the brightness of selected area is not appropriate, click [ROI] to specify the target area (see 6.1.6).

If the selected area is not cropped appropriately, click to specify the target area (see 6.1.7).
If the masked area is not appropriate, click [Mask] to specify the target area (see 6.1.8).

E040E01001

Failed to load the extra defect correction file. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then calibrate the detector (refer to 3.5.1 in the Setup Guide). If this error occurs again, inform a service engineer of the error code.

Continued

E041000004

Invalid studies are acquired. Check the examination file.

→ Check if the study orders are valid. Acquire valid study orders again from the HIS/RIS database.

E041000005

Entered information has invalid value. Invalid values are replaced with blanks. Check the examination file.

→ Check if the study orders are valid. Acquire valid study orders again from the HIS/RIS database.

E041000006

Specified ID is not found in the examination file. Check the examination file.

→ Check if the study orders are valid. Acquire valid study orders again from the HIS/RIS database.

E041000008

An error was discovered while checking the user input by the script. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and inform a service engineer of the error code.

E041000010
E041000012

An error has occurred in CCRHIS library. Try again. If the problem is not resolved, contact a service engineer.

→ Show Additional Information to check the error details and click [OK] to close the dialog box. Then retry the previous operation according to the error details.
If this error occurs again, inform a service engineer of the error code.

E041000020

Examination file loading was halted because the acquired exams reached the maximum number. End the suspended exam and retry reading.

→ Click [OK] to close the dialog box. Restart suspended studies from the [EXAM > Worklist] screen (see 4.6), finish the examinations, and then retry reading.

E041000021

Invalid studies are loaded and cannot be displayed. Check the examination file.

→ Click [OK] to close the dialog box. Check the values for essential information, and then retry reading.

E041000022

Entered information has invalid value. Invalid values are replaced with blanks. Check the examination file.

→ Click [OK] to close the dialog box. Check the values for information which are not essential, and then retry reading.

E041000023

Failed to read the examination file. Check the setting information.

→ Click [OK] to close the dialog box. Check that the information entered in CSV format is identical with the actual location and name of a folder which includes study orders, and retry reading. If the folder is mapped as a network drive, check the connection status of the folder.

E041000024

An error occurred during automatic examination file updating. Check the setting information.

→ Click [OK] to close the dialog box. Check that the information entered in CSV format is identical with the actual location and name of a folder which includes study orders, and retry reading. If the folder is mapped as a network drive, check the connection status of the folder.

E041000025

Failed to read the examination file. Check the setting information.

→ Click [OK] to close the dialog box. Check that there is no problem in the media that includes the examination files or whether the file is corrupted or not.

E041100004

Failed to start up CxdiInfo. Check the setting information.

→ Click [OK] to close the dialog box and inform a service engineer of the error code.

E050501006

The internal temperature of the detector exceeds the upper limit. Images cannot be captured until the temperature has dropped.

→ Suspend the examination (see 4.6) and wait until the temperature decreases. Then restart the suspended study order.

Continued

E050501008
E050501009

A drive circuit error occurred. Contact a service engineer.

E05050100A
E05050100B

An abnormality was detected in the detector structure. Contact a service engineer.

E05050100C
E05050100D

A control line connection error was detected in the detector. Contact a service engineer.

→ Inform a service engineer of the error code.

E050501010

Failed to transfer the image data. Try again. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then retry the image transfer.
If this error occurs again, inform a service engineer of the error code.

E050501012

An abnormality was detected in the analog power supply for the detector. Contact a service engineer.

E050501014

A grid error was detected. Contact a service engineer.

E050501016

The firmware is different. Contact a service engineer.

→ Inform a service engineer of the error code.

E050502026

A detector communication error occurred. The cable may be disconnected or there may be power discontinuity in the detector. Check that the cable is correctly connected and restart the detector. If the problem is not resolved after restarting, contact a service engineer.

→ Click [OK] to close the dialog box, check the cable connection to the detector, and restart the detector.
If this error occurs again, inform a service engineer of the error code.

9.1.3 Warning list

W020202001

The detector temperature has reached warning levels.

W020202002

The detector temperature has reached dangerous levels.

→ Suspend the examination (see 4.6) and wait until the temperature decreases. Then restart the suspended study order.

W020202003

The detector is not available. Irradiation has finished.

→ Click [OK] to close the dialog box and then continue the operation.

W020202004

The detector battery is weakening. Charge the detector battery.

→ Click [OK] to close the dialog box and charge the battery of the wireless detector. If the optional wired connection is available, switch to the connection. For details on the wireless detector, refer to the Digital Radiography CXDI series User's Manual.

W020202005

The specified disk space could not be cleaned up.

→ Check the target data volume to be deleted and then retry deletion (see 5.3).

W030203003

The internal temperature of the detector exceeds the upper limit.

→ Suspend the examination (see 4.6) and wait until the temperature decreases. Then restart the suspended study order.

W040100045

Calibration data is invalid. Update the calibration data.

→ Click [OK] to close the dialog box and then calibrate the detector (refer to 3.5.1 in the Setup Guide).

W040100052

The detector issued a warning.

→ Click [OK] to close the dialog box and then continue the operation.

Continued

W040500007

Characters which do not match the current character code are used in this data. This character code will be properly changed automatically. Check the setting information.

→ Click [OK] to close the dialog box.
Characters that do not match the current character code will be replaced with "?." Continue the operation when the replacement is acceptable.
To disable the replacement, inform a service engineer of the error code.

W040500009

Failed to copy a tag to C-STORE. Check the tag information and the C-STORE communication log.

If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and check the original DICOM tag and the C-STORE communication. Then correct the original tag and retry the previous operation. If this error occurs again, inform a service engineer of the error code.

W04050000A

Failed to copy tag to the DicomFile. Check the original data. If the problem is not resolved, contact a service engineer.

→ Click [OK] to close the dialog box, and then check the original DICOM tags of the DicomFile and the DICOM communication. Correct the original tags. If this error occurs again, inform a service engineer of the error code.

W040505003
W04050500A
W04050501C-04050501E

An error occurred in DICOM communication.

→ Contact the system administrator.
The problem may be resolved by checking the destination server or the DICOM conformance statement. If the problem cannot be resolved, inform a service engineer of the error code.

W040505030

The transmission was complete normally. However, the CXDI system received WARNING status from the destination DICOM printer. Check the DICOM printer.

→ Check the DICOM printer. For details on Printer Status, refer to Annex C.13.9.1 in the DICOM standard Part3: Information Object Definitions or the DICOM conformance statement.

W050501002-050501004

A Flash ROM error was detected in the detector. Contact a service engineer.

→ Click [OK] to close the dialog box, and then restart the image-capture computer and the Software (see 2.2).
If this error occurs again, inform a service engineer of the error code.

W050501005

A grid error may have caused an image abnormality.

→ Click [OK] to close the dialog box. There may be a problem in the captured image. Check the image and retry the examination.

W050501007

The internal temperature of the detector is close to the upper limit. Do not leave the detector in the Ready condition.

→ Click [OK] to close the dialog box, click [Unselect], and wait until the temperature decreases.

W05050100E
W05050100F

An error was detected in the detector.

→ Inform a service engineer of the error code.

W050501011

The transfer of the image data was stopped.

→ Click [OK] to close the dialog box. There may be a problem in the captured image. Check the image and retry the examination.

W050501013

A grid ID loading error was detected.

→ Check if the grid is properly attached.
If the problem cannot be resolved, inform a service engineer of the error code.

W050501015

A grid error may have caused an image abnormality.

→ Click [OK] to close the dialog box, and check the captured image.
If there is a problem in the image, inform a service engineer of the error code.

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